# AMERICAN VETERINARY REVIEW.

MARCH, 1900.

*All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.*

## EDITORIAL.

### A BUSINESS TALK WITH REVIEW SUBSCRIBERS.

Beginning with the first number of Volume XXIV (April, 1900,) the REVIEW will inaugurate a radical change in its system of conducting its subscription department. *Every* subscriber whose paid-up subscription terminates with the close of the present volume, and who does not renew the same by remitting the amount prior to the date of mailing that number will fail to receive it. We are compelled to adopt this means on account of the imposition practiced upon the publishers by a large number who are now upon the subscription lists, and who absolutely ignore all bills, notices and entreaties to pay their obligations. There are a very large number of names on those lists to whom the REVIEW has been regularly sent for two and three years, and even longer periods, and from whom no word has ever been received except an occasional complaint of tardiness in the receipt of the journal. We cannot permit those who regularly pay their subscription fees to do so for the benefit of others who are either careless or unwilling to discharge their just indebtedness. We regret very much that this inviolate and drastic rule will strike many who do not deserve such treatment at our hands, but they are usually men who understand that the enforcement of any radical reform must affect the just while reaching out for the unjust.

The REVIEW has for many years had a patronage sufficient to guarantee its readers a much better journal than they have

They were in the heavy timber. The snow, five or six feet deep on the level, they had packed down by tramping about, so that they were shut in by the white walls of snow several feet high, forming a "yard" such as the elk make in the aspen thickets during the winter. The poor beasts were terribly emaciated and in the last extremities of starvation. Agent Bailey and his companion returned to Wauneta and went back on snow shoes as soon as possible with hay for the all but famished animals. One or two died from the cold and privation in spite of the efforts of the two men. It was three weeks before a path could be beaten to the town and the horses able to travel. They were then taken to Wauneta and their owners, known from the brands on the horses, notified. Agent Bailey demanded from each owner the pay for the food taken to the horses, and the necessary expense of removing them from the mountains. This was refused by the owners, and the horses were held by the agent. A suit to replevin was then instituted by the owners for the recovery of the horses. This is the case as it stands, and the decision of the court will determine whether or not a horse that has been left by his owner to starve during the winter may contract a board bill, for which the owner is liable, and in a large degree fix the relations of owner and owned.—(*Denver Post.*)

**ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,**

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the REVIEW in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

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The REVIEW has for many years had a patronage sufficient to guarantee its readers a much better journal than they have

been receiving, if all paid their bills; but the yearly accumulation of unpaid balances of subscribers simply cramps the financial management to such a degree that the publishers are unwilling to bear with it any longer.

To those who in consequence of this change in methods are seemingly harshly dealt with, and who we know do not deserve such treatment, we can only say that this step has been taken as much for their benefit as for our own, and we firmly believe that American veterinary journalism will be greatly benefitted by it.

During the month of March bills will be forwarded to every subscriber for all back dues and for Volume XXIV (beginning with April, 1900); all who remit will receive the REVIEW promptly each month for that volume; those who ignore the notification will be stricken from the lists. We cannot afford to lose one, and we sincerely trust that the blue pencil will not mar the name of a single subscriber. But if it does, it is an act of their own.

This notice will be published in a prominent position in the February and March issues of the REVIEW, so that there will be not one who can assert that he did not have due warning of the unwilling change in methods that has been forced upon the publishers.

## EUROPEAN CHRONICLES.

APPLICATION OF ELECTRICITY TO HORSES.—Electricity is not used in veterinary surgery, or at least in very rare instances, and it is quite certain that among the reasons which prevented its entrance in the domain of ordinary practice are the difficulties of its application, as well as the dangers to which it exposes both the operator and the operated, the former, if the operation is done with the animal standing; to the second, in consequence of the means of control which must be used—casting. And these are apparently such that men like Storkfelth, Jobelot and Möller have in their writings stated that the application of electricity was impossible unless the animal

was secured in the decubital position and chloroformed.

At the clinics of the Veterinary School of Milan, Dr. A. Baldoni has for some time, as far back as 1897, carried experiments which seem to prove that there is some exaggeration in the statements of the brilliant authorities referred to above. He has simply resorted to specially arranged stocks, three models of which are placed in various wards of the hospital of the school, in which the animal is perfectly and safely secured for himself and for the operator. Dr. Baldoni resorts to continuous current, which he applies gradually, so as to have the animal become used to it by degrees and all without violent struggles or any danger of injuries.

The results which have been so far obtained and are recorded in several issues of the *Clinica Veterinaria* are certainly very telling, and if the number of cases treated are not yet sufficient to be decisive in their value, this cannot be entirely decried, specially when taking into consideration that nearly 50 per cent. of the cases treated have recovered, and the balance shown various degrees of improvement. Applied to affections of nervous origin, there is no reason why with the method used at the clinics of Milan, veterinarians cannot gain as much advantage as human surgery does.

The cases recorded by Dr. Baldoni are the following: 3 of paralysis of the supra-scapular nerve, 1 recovery and 2 improvements; 3 of paralysis of the same nerve on the left side, 2 recoveries and 1 improvement; 1 roarer, improved; 1 paralysis of right radial nerve, improved (this patient died of pneumonia during the treatment); 1 case of paralysis of the anterior femoral nerve, recovery; 1 of contusion of the postea spinatus with atrophy, recovery; 1 of chronic lumbar rheumatism, recovery; 1 sprain of dorso—lumbar region with paralytic manifestations, improved. The last case is complicated: bruise of the anterior face of the right arm, with partial laceration of the coraco-radial and corresponding pectoral muscles and necrotic splinters of the anterior-external face of the humerus. Notwithstanding complications of the other fore leg, the case was

improving under treatment by electricity at the time it was recorded, with all prospects of recovery.

* * *

INTRAVENOUS INJECTIONS.—Should this mode of therapy be accepted in general practice? Such is the question that was presented lately by Mr. P. Chaussée, at least for the application of therapeutic serums, antitetanic, antistreptococcic or artificial. By a series of experiments which he has made, Mr. C. seems to answer his question in the affirmative, and considers this mode presents advantages over the hypodermic method. For him, the dangers of the operation have been exaggerated; he has never met with any of the complications of thrombus, abscesses or phlebitis, although he acknowledges having operated in several instances without any antiseptic preparations. In using antitetanic and anti-streptococcic serum he has injected 10, 20 and 30 cubic centimetres without any complications, and of the artificial serum he has introduced 800 and 1000 grammes in the general circulation of mares and cows after difficult parturition and has obtained most magnificent results.

Prof. Moussu, of Alfort, to whom the paper had been referred, gives, however, a cold answer of "no" to the principal question, viz., *Have intravenous injections real advantages in all cases?* With the antitetanic injections, there remains but one indication for its use, the preventive injection. Except the clinical cases, experimentation has shown that intracerebral injections remain inefficacious. Must it be the same for intravenous injections? As to saline injections (artificial serum) they cannot answer for all cases. They have many advantages, but there are many abuses, and are indicated in the form of intravenous injections only after severe hæmorrhages, when there is danger of death; they are indicated in infections with cardiac collapse, where they raise the blood tension, stimulate the heart, arrest or retard the destruction of the globules, etc. And even in these cases it must be done under some special condition and special care.

The use of artificial serums, of which we spoke some months ago in the REVIEW, had better remain confined for some time to hypodermic administration, as, notwithstanding the results claimed by Mr. Chaussée, it is quite certain that the authority of the Professor of Alfort will prevent the free adoption of intravenous injections until more experiments are made.

A. L.

## VETERINARY JOURNALISM.

Our esteemed English contemporary, the *Veterinary Journal*, came forth with its January number in the rôle of a journalistic giant, departing from its time-honored conservatism of stepping in the same tracks from one year's beginning to its close, and announced that a copy of that issue would be forwarded to every known English-speaking veterinarian in the world, in the hope of extending its circulation and thus adding to its ability to publish a greater monthly. To one who has read the *Journal* for many years, the departure noted would almost take one's breath away, so methodical, so staid, and so conservative has been its former conduct. But it showed so much snap and up-to-date enterprise in that number that we congratulate the publishers and the editors, and trust that the expense incurred may be returned many times over. Such efforts in America are usually non-productive of results, however earnestly they may have been pursued. The inauguration of a cash basis by the REVIEW, beginning with next month's issue, is another departure from a long established custom; but in this case necessity is the father of the venture. Out in California an enthusiastic veterinarian began the publication of a journal in September, which made its appearance for two consecutive issues, and subsided into "innocuous desuetude." The query might be made: "Since it was so soon undone, why was it ever begun?" All of which goes to show that he who imagines that the publication of such a magazine is a work of pleasant luxury and remunerative idleness will find out his grievous error before his first volume has been completed. Ask Editor Hoskins, of the

Philadelphia *Journal*, what he thinks about it. Then sit down and write your check (enclosing ten cents extra for bank collection charges if outside of New York City) for a renewal of your subscription to Volume XXIV—if your paid-up subscription terminates with this number; you'll get a bill this month if it does. If practice is good, buy Brother Hoskins' paper, too. If you are really making money, take the English *Journal* along with them; but, whatever you do, don't neglect the check for the REVIEW—and the extra ten cents; or else a postal money order, and save the dime.

## LET THE COBBLER STICK TO HIS LAST.

The New York *Journal*, said to be the "yellowest" paper in the country, periodically indulges in "scientific" editorials for the delectation of its very mixed circle of readers. Behold the following extract from one of its "wisest" efforts, under the "catchy" caption, "Legs Under the Whale's Skin, and 'Pink Eye' in Horses," which it apologizes for in these words: "Of course, this heading has been purposely written to seem odd. But editorials are so dull and you are all so busy that you'll excuse any effort to fix your attention." With the *Herald's* automobile lies and the *Journal's* "popular science," the horse is having a hard time of it in Gotham. Observe how it fixes the reader's attention:

* * * * * * *

"You who have horses know that the disease called 'pink eye' is now epidemic. That disease is unquestionably due to one of the 'vestigia,' and we advise educated veterinary surgeons to look into it. The trouble with the 'pink-eye' horse lies in his remnant of a 'nictitating membrane.'

"Certain birds, mammals and fishes—notably crocodiles, sharks—possess a sort of third eyelid. The shark's nictitating membrane extends from the inner corner of his eye, and he can spread it over the whole eye with ease.

"If you look at your own eye you will see near the root of the nose a little moon-shaped fold, which is called the 'plica semilunaris.' That is the rudiment in man of the membrane which is still so useful to the shark, the nictitating or 'winking' membrane. You know by experience how easily it is irritated by a speck of dust. This rudiment in the horse causes him great trouble. It gives him 'pink eye' when it gets inflamed, and it might be worth while for Dr. Huidekoper to try surgi-

cal removal of that rudimentary membrane from horses, as Dr. Bull removes the appendix from human kind."

* * * * * * *

## HOW THEY HANDLE TUBERCULOSIS IN MINNESOTA.

It usually takes persistent and patient work to get any important movement started, but if we only stick to it, we can frequently accomplish great things where the first outlook was very discouraging. It was quite difficult to get work with tuberculin started among Minnesota breeders. The work with city dairies was easier to manage, and we are all proud of the advanced position that has been taken both by Minneapolis and St. Paul; *i. e.*, license to sell milk based on tuberculin test. Several of the smaller Minnesota cities of 3000 to 10,000 have adopted similar ordinances, others have such on the programme for early adoption, even as far northwest as Warren, away up in the Red River Valley. At a recent meeting of the Minnesota State Agricultural Society, a committee of five was appointed to confer with the representatives of the State Board of Health and Experiment Station with a view to studying the problem as presented in that State. The five selected were all influential breeders of pure bred cattle. Quite a number of pure bred herds have been tested and others are promised for the near future. Things do move, but sometimes it takes a long while to get them started.

## IOWA'S AGRICULTURAL COLLEGE.

We are in receipt of the eighteenth biennial report of the President of this well known State college, and are interested in his recommendations concerning the veterinary department, which, under the wise guidance of Prof. Stalker, has made a national reputation for his school such as any one might take pride in. He takes a very hopeful view of the future of the profession, and after dwelling upon the progress already made, says that "in the next five years we must make provisions and

suitable quarters for general hospital purposes, for a hospital for infectious diseases, for laboratories, and histology, physiology, pharmacy and bacteriology, for dissecting room and crematory, and for shoeing shop. In addition to all this, it will be necessary to have the corresponding equipment of men and apparatus. An estimate of $75,000 is in moderation." With the eloquence of Dr. Stalker before the proper Legislative Committee, we have no doubt but that the securing of such an appropriation will be an easy task.

## IOWA SEEKS A VETERINARY LAW.

We print elsewhere a copy of a bill just introduced in the lower house of the Iowa legislature by Representative Koto, a veterinarian—who is, by the way, an enthusiastic member of the State Association and chairman of its Committee on Legislation. It will be seen by reference to it that our Iowa brethren are rather modest in their demands for protection, but it is explained that a radical bill would have no opportunity of passage whatever; and in such a case the bill as it stands is a splendid "half loaf." It disarms all opposition, since it takes under its wing all who have practised for five years, and does not disturb the army of castrators and dehorners. But it accomplishes the subsidence of non-graduates on the closure of the registration books on January 1, 1901. The bill was drafted by the Legislative Committee of the Iowa Association—Drs. Koto, Repp and Gibson, broad-minded and zealous of their profession's interest, yet conservative and diplomatic enough to know just how far to go. Since the bill meets their approval we are assured that it is the best that can be secured at present, and we trust the profession will support it unstintingly.

MANY SUBSCRIPTIONS terminate with this issue. By an iron rule going into effect now, no one will receive another number after the close of the term paid for. See full explanation at head of this department. Look through this issue carefully, and say if you can afford to lose your best friend. The

REVIEW cannot afford to lose you. Don't ignore this notification, and then ask why you have not received your April number. Send a postal order or check *now* while it's fresh in your mind. Volume XXIV will be the best the REVIEW ever gave its readers. We know it, because our plans are well matured.

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THE MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION met in St. Paul, January 11 and 12, with an attendance of about thirty members. The association gained eight new members at this meeting. The programme was thoroughly enjoyed. This was a record breaker for Minnesota, but they say the next annual meeting will surpass this record.

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THE activity of the committees of veterinary medical associations and State Secretaries in behalf of the Bill to establish a veterinary Army Corps is most gratifying, and with such influences working all over the country there can be no such word as "fail."

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# ORIGINAL ARTICLES.

## OBSERVATIONS CONCERNING THE SIGNIFICANCE OF STREPTOCOCCI IN COMPARATIVE PATHOLOGY.

BY VERANUS A. MOORE, B. S., M. D.
*Professor of Comparative Pathology and Bacteriology, New York State Veterinary College, Cornell University, Ithaca, N. Y.*

(*Continued from page 787.*)

### STREPTOCOCCI IN DISEASES OF DOGS.

Distemper, rabies, and chronic pneumonia are the only diseases of dogs which I have examined bacteriologically. In the examination of cases of rabies I have never met with streptococci in the organs, and the same is true of the few cases of broncho pneumonia which have come to my attention. In distemper, the results have been quite different but not constant.

The literature upon the cause of this disease is, so far as bacteria are concerned, quite conflicting. Dr. Jess* has recently isolated a bacillus from the nasal discharges, blood, and internal organs of dogs suffering from distemper which he looks upon as the probable etiological factor. Although Dr. Jess' investigations are of recent date and while it is not improbable that he has found the cause I can not refrain from giving in this connection the results of a few examinations which at least show the power of streptococci to complicate investigations in this species.

In all I have examined three cases.

The first two came to Dr. Law's clinic in the winter of 1898–99. They were both in the advanced stage of the disease when received and died soon after their arrival.

A congestion of the lungs was the only marked abnormal condition detected. A large number of tubes of media (bouillon, gelatin and agar) were inoculated from the tissues from each case. The tubes of bouillon and agar inoculated from the liver, spleen, kidneys, heart blood, and brain from one case developed into cultures of a streptococcus. The gelatin remained clear. The cultures were nearly all pure. The streptococcus grew in long chains forming dense interlacing masses or flocculi. It was exceedingly delicate in its cultural manifestations but it was not pathogenic, in moderate doses, for rabbits or guinea-pigs. Larger quantities of culture were not injected.

The cultures from the other case contained a streptococcus. It differed from the first in growing in short chains and imparting a uniform cloudiness to bouillon. In all of its cultural manifestations it was more saprophytic in its tendencies than the culture from the first case. It was innocuous for experimental animals.

A third case, which exhibited marked nervous symptoms, was recently examined. A small dog in the advanced stage of the disease was brought to Dr. Fish for treatment. It was comatose for fully 48 hours preceding death. Through the

* *Centralblatt für Bakteriologie u. Parasitenkunde* Bd. XXV (1899) S 541.

kindness of Dr. Fish I had the privilege of making the post-mortem. There was considerable purulent discharge from the conjunctivæ. The left lung was collapsed and part of it in a state of consolidation. The mucosæ of the intestines were deeply reddened in circumscribed areas throughout. The brain was slightly hyperæmic. In other respects the organs appeared to be normal. A large number of cultures were made from the various organs. Those from the spleen, kidneys and blood remained clear. The others contained different bacteria. One of the cultures from the brain, one from the left lung, and those from the conjunctiva contained a streptococcus associated with other bacteria. It grew in long chains but it was not separated in pure cultures.

The results of these examinations are interesting in showing that in dogs certain streptococci find conditions favorable for life. Although it was thought that the streptococcus isolated from the first case was related to the disease, the results of the examinations of the two subsequent ones threw much doubt upon this hypothesis. No other suspicious organism was discovered.

### THE WIDE DISTRIBUTION OF STREPTOCOCCI A FREQUENT SOURCE OF CONFUSION.

The fact has been pointed out in many publications that streptococci are quite widely distributed in nature. The results of the bacteriologic examinations of normal mucous membranes show that they are frequently included in the bacterial flora of the mouth, throat, nares, intestines, vagina, and in a few cases they have been found in the bronchioles of the horse* and rabbit†. They are also present in greater or less numbers on the skin, especially in the deeper layers, presumably in the ducts of the sweat and sebaceous glands. In a former publication‡ I called attention to their existence in soil and water, and stated that some of these extraneous forms were quite as deli-

* Examinations made in his laboratory by Mr. R. C. Reed. 1897.

† Beco. Archives de Méd. Expérimentale. Tome XI (1899.) p. 317.

‡ *Loc. cit.*

cate in their morphology and equally as sensitive to the influence of environment as those isolated from diseased animal tissues. In view of this wide distribution, the presence of a streptococcus in any of the abnormal conditions heretofore mentioned cannot be considered necessarily a specific infection from a previous case of the same kind. In many affections where the specific organism has been demonstrated, such for example as diphtheria, tuberculosis, and hog cholera, streptococci frequently appear in the lesions. In these cases they are considered as accidental or secondary invaders, although in some of these maladies, such as tuberculosis, they are believed to be of more or less secondary importance. When, however, the specific cause of the disease is not positively known, and streptococci which possess certain pathogenic powers for experimental animals are constantly present and seem to stand in a causal relation to the disease, the pathologist is confronted with a puzzling problem in trying to determine the source and the etiologic importance of the organism in hand. In cases of infection leading at once to septicæmia, peritonitis or suppuration the explanation is more simple than in the epizoötic diseases such as *Brustseuche* in horses or distemper in dogs where the constant presence of streptococci in the lesions can be quite as easily explained on the ground of their normal presence in the parts affected as on the hypothesis of a specific infection. It is in these cases that we are seeking for the crucial test.

We have found in a few test experiments that when certain of the delicate streptococci which exist (are found) in external nature (soil or water) are introduced within the tissues of certain animals they become, by reason of their activities, a source of irritation which causes local tissue disturbances. In a few instances they have produced septicæmia with fatal results.

In cases of infection resulting in septicæmia, or in those where the disease is more localized as in strangles or mastitis, and possibly in others where the affection spreads more or less rapidly, we can not well escape from the feeling that the streptococci present in such large numbers, must either stand in a

causal relation to the disease or be accounted for by their rapid proliferation in native soil made favorable for their excessive increase by the conditions produced by the true etiological factors. Their natural distribution is so wide, and their virulence so capricious that a secondary invasion, which seems always to be possible, renders the fixing of etiological responsibility upon a streptococcus isolated from any diseased tissue a somewhat difficult task. The problems in this connection which concern us most and which need more extended investigation pertain (1) to the determination of the parasitic possibilities of streptococci existing in nature, *i. e.*, those ordinarily considered as saprophytes and, (2) to the distinction, if it exists, between streptococci which are able to produce local inflammatory processes leading to suppuration and those which produce highly infective and rapidly spreading diseases, such as erysipelas and possibly strangles and *Brustseuche*.

ANTISTREPTOCOCCIC SERUM.

The questions which are asked most frequently concerning the practical side of this subject pertain to the antitoxin or antistreptococcic serum. Certain temptations have been placed before the veterinary practitioner by way of attractive and assuring advertisements of such products. The beneficent results from diphtheria antitoxin seem to attract people toward serum therapy with more hope than knowledge concerning the properties or probable therapeutic action of the serum to be used. It is not pleasant to put even the proverbial straw in the way of the enthusiasm over serum therapy, but in a sober consideration of the practicability of the widespread use of antistreptococcic serums in the diseases heretofore mentioned in which streptococci are associated and where they stand in a possible causal relation to the disease, certain important facts must be taken into account.

If I have succeeded in conveying the facts as I see them concerning the relation of streptococci to animal diseases, it is clear that there is a large number of these organisms which are likely to invade the animal body either as primary factors

in the production of disease or secondary invaders possessing more or less septic power. This being the case, the advocates of the general use of any of these serums imply that the antitoxin of one streptococcus will immunize against or cure animals infected either with the same or with any other species or variety of this genus of bacteria.

In 1897 Van de Velde* in a very exhaustive series of experiments showed that one streptococcus antitoxin will not immunize against another save to a very slight degree.

The statements of Sir Richard Douglass Powell† in his recent address before the British Medical Association are worthy of consideration in this connection. In pointing out the value of antistreptococcic serum in human practice he urged the recognition of the real organisms to be combatted: "From the clinical side," he states, "one would judge there to be very frequently more than one poison in association. This is certainly the case in many diseases. We must push our diagnosis further to include a recognition of the precise organism or organisms which have obtained lodgment in any case."

The evidence before us in numbers of reports of the results of the use of this serum in human practice shows that in certain instances its effects have been almost miraculous in their restorative power, but in others entirely useless. The report ‡ of the committee appointed by the American Gynæcological Society to investigate the value of antistreptococci serum in the treatment of puerperal infections contains this statement: "Experimental work has cast grave doubts upon the efficiency of anti-streptococci serum in clinical work by showing that a serum which is obtained from a given streptococcus may protect an animal from that organism but may be absolutely inefficient against another streptococcus and that the number of serums which may be prepared is limited only by the number and

* Archives de Médécine Experimentale, Tome IX. (1897), p. 833.

† Philadephia Medical Journal, Aug. 19, 1899.

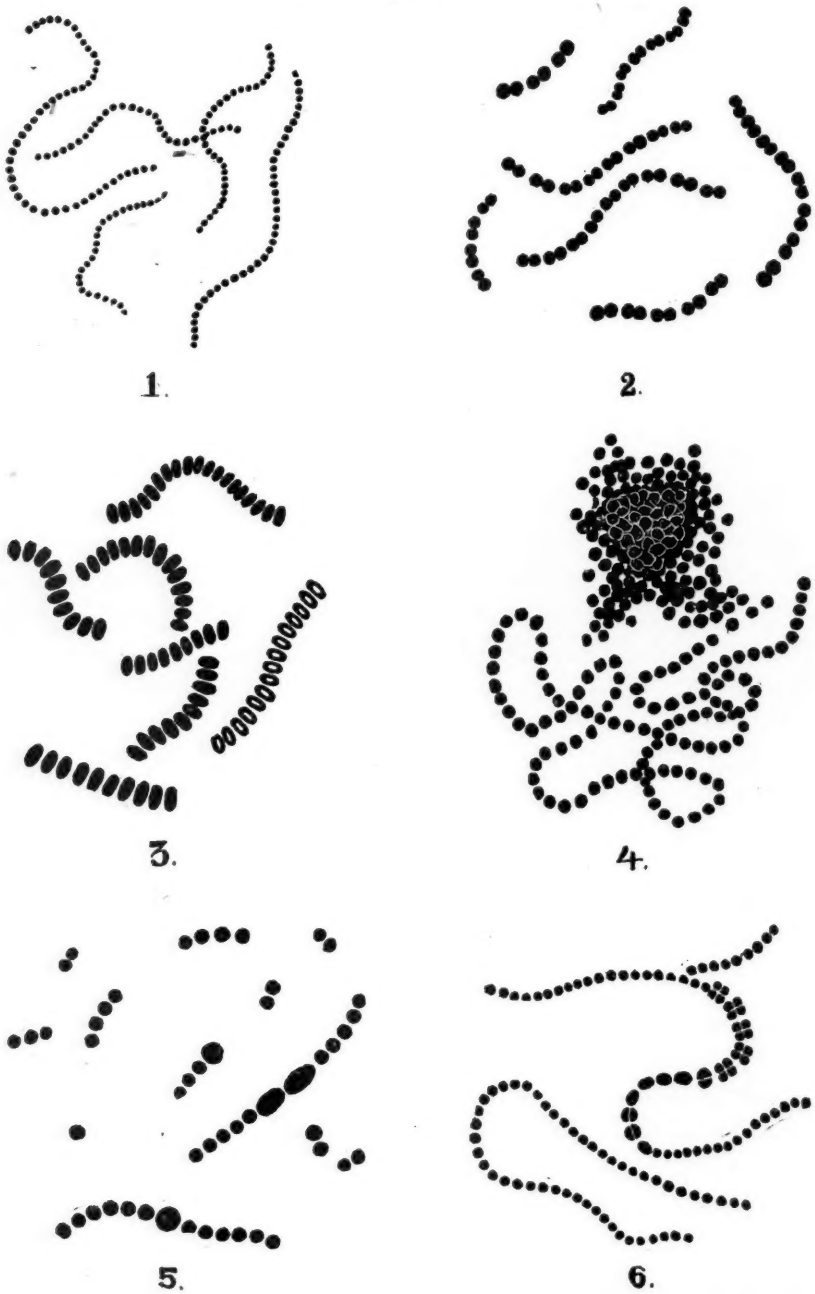
‡ *The American Journal of Obstetrics*, September, 1899. Reviewed in *Lancet*, Nov. 18, 1899.

varieties of streptococci which may exist." The committee found nothing in the literature or in their own experience to indicate that its employment will materially improve the general results in the treatment of streptococcus puerpural infection.

If this is the case in human medicine where, as I have already stated, there is a better knowledge of the action of the streptococci, how can we expect better results from similar methods in veterinary medicine? Our own experiments suggest further that the procuring of a serum of recognizable value from any of the virulent streptococci is not in all cases, even experimentally, easily accomplished. It seems just, both to the bacteriologist and to the practitioner, that the investigations should be continued until we are in possession of more definite and trustworthy results concerning the action of the serums prepared from different streptococci on the diseases produced by the same species, before veterinarians become too eager to risk their reputation or the money of their clients in a general and unscientific application of these expensive remedies. If, however, the results of the investigations directed towards the production of a polyvirulent serum by using all known streptococci in its preparation succeed, we may yet have a single product which will be efficient in the healing of each and all of the streptococci infections. The accumulated evidence at the present time points, (1) to the probable high efficiency of certain anti-streptococcic serums against the diseases produced by the same streptococcus and, (2) that these same serums are likely to have little or no value in diseases caused by other streptococci or other genera of bacteria. If this interpretation of the recorded results is the correct one, additional reasons for the necessity of a careful differentiation of the streptococci liable to be present in animal diseases where this remedy is to be applied are too obvious to need further explanation.

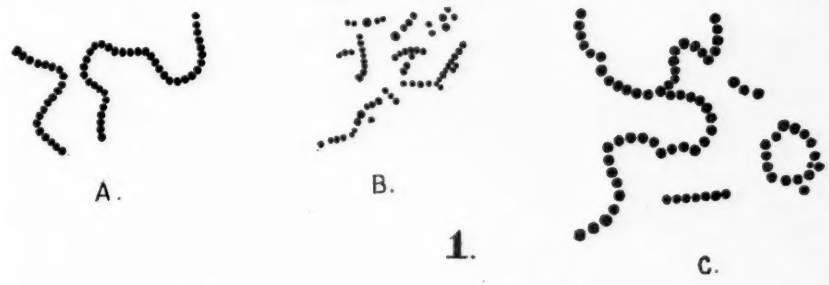
Finally, it is evident from the conflicting records concerning the morphology and the etiological significance of streptococci in the domesticated animals, that much work must yet be done

# PLATE I.




MORPHOLOGY OF STREPTOCOCCI.

# PLATE II.



DIFFERENT SPECIES OF STREPTOCOCCI.

before the life history and the importance of these organisms will be fully determined. The outcome of the fragmentary examinations herein mentioned tend to the conclusion that in comparative pathology streptococci are of much more value than we have heretofore been accustomed to assign them. While the facts elicited are not sufficient to warrant very general conclusions, they have thrown some additional light upon the nature of a number of the more common septic and suppurative maladies although the evidence is not conclusive concerning their relation to any of the epizoötic diseases. Attention has also been called to the variety of species, the wide distribution, and the parasitic tendencies of streptococci and to the use of antistreptococci serums, each of which calls for more extended investigations before final opinions can be recorded.

*Erratum.* In foot note page 777, for Bulletin No. 177 read No. 178.

# PLATE III

1

2

3

SO-CALLED FOOT ROT IN SHEEP.

## DESCRIPTION OF PLATES.

Plate I. This represents six phases in the morphology of streptococci.

Fig. 1. Long chains consisting of small segments arranged with equal spaces between them.

Fig. 2. Long and shorter chains in which the segments are arranged in pairs. The size of the individual segments is considerably larger than those in the long slender chains (Fig. 1).

Fig. 3. Short and longer chains where the segments are oval with the long diameter perpendicular to the long axis of the chain. These are less frequently encountered than the other forms.

Fig. 4. Long interlacing chains, also a number of chains forming a dense mass. *Streptococcus conglomeratus* is a good illustration of this form.

Fig. 5. Short and longer chains with one or more segments very much larger than the others. These enlarged elements frequently appear in short chains but they are rarely seen in long chains.

Fig. 6. Chains showing branch and also division in two planes. This is a drawing of *streptococcus pyogenes* taken from Crookshank's text book. This form of division has been observed in a few cases in this laboratory but we have not recognized branching forms. The dividing in two planes is an exception which is not satisfactorily explained.

Plate II.

Fig. 1. Drawings from Zenoni's article showing the changes occurring in the morphology of a streptococcus when cultivated on different media, (a) from bouillon, (b) from bloodserum-bouillon, and (c) from agar cultures.

Fig. 2. A drawing from a cover-glass preparation of the pus from the knee joint of a colt suffering from omphalophlebitis. It shows organisms singly, in pairs, and short chains.

Fig. 3. A drawing from a cover-glass preparation from a bouillon culture from the pus, same as Fig. 2. It shows both long and shorter chains, also one chain with division of a few segments in two planes and elongated segments.

Fig. 4. A drawing from a cover-glass preparation from the udder discharge in a case of infectious mastitis. It shows streptococci in moderately long chains.

Fig. 5. Streptococcus of strangles (after Kitt).

(Figs. 1 to 4 inclusive magnified about 1000 diameters.)

Plate III. So-called foot-rot in sheep.

Fig. I. Photograph of the feet and left knee joint of sheep No. 1.

Fig. 2. A photograph of the two left feet of sheep No. 2. From the fore foot pure cultures of the streptococcus were obtained.

Fig. 3. A photograph of the bottom of same feet showing the separation of the claws due to a thickening of the interdigital tissues.

# TEN CASES OF AZOTURIA TREATED WITH POTASSIUM IODIDE.

By T. S. Childs, V. S., Saratoga Springs, N. Y.

*Case No. 1.*—Bay mare, 10 years old, used on a business wagon, about 1100 pounds in weight; she had been down for three days. I was called in consultation by Dr. Will. Ide, the local veterinarian, to Corinth, 18 miles from Saratoga, Dec. 1, 1899. On my arrival I found the mare down, but she could get up with help, but could not stand but a very short time. On drawing the urine I made a diagnosis of azoturia. I gave potassium iodide, ℥ ss, and ʒ ii every two to four hours as the case indicated. I left the case resting very easily, and in a few days she was all over the disease, but she was lame from an injury she received during her struggles, and the Doctor reported to me a few days ago that she was doing very nicely, and he thought would be all ready for her regular work in a few days.

*Case No. 2.*—Gray gelding, about 1400 pounds, used on a candy peddling wagon, owned in Lansingburgh, N. Y. He was driven to Mechanicsville, a distance of about five miles, and went down in the street. Dr. J. Lee Shorey, the local veterinarian, was called, and he explained to the driver the serious nature of the disease and advised him to call me in the case, as he (Dr. Shorey) had just lost three cases of the same kind, and he had the help of the best veterinarian in the city of Troy and Albany, N. Y. So by Dr. Shorey's advice I was called to Mechanicsville, Saratoga Co., N. Y., Dec. 1, 1899. I had just left my other Corinth case, and arrived in Mechanicsville at 8 P.M. I found the above described case down and could not get up, and was in great pain. The Doctor had drawn the urine, and had placed hot packs to the loins. I gave at once potassium iodide, ℥ ss, and gave ʒ i doses every hour until midnight, at which time I left; the animal resting very quietly. The next morning at 9.30 he got upon his feet and ate a good big bran mash, and got up and down as he wished until Monday morn-

ing, at which time he went home all O. K., and since that time has been at his regular work.

*Case No. 3.*—A big black gelding, 11 years old, about 1300 pounds, used on a carpet wagon, owned in Saratoga Springs. I was called hastily to a case of colic and found on my arrival animal down, but could get up with help, but could not stand but a very few moments. He had colicy pains, up and down, and at last could not get up. In this case I gave aloin ʒiii, as a physic, as the animal's bowels had not acted for two days, and gave all the usual treatment, as hot packs and drawing the urine, and keeping as quiet as possible. Gave potassium iodide, ℥ss, and left ʒii to be given every two hours for two or three doses, and ʒi to be given as indicated, that is, if very much pain should take place. The next morning the owner telephoned me that the horse was up and was so much better that I need not call; that he would let me know if he got worse. I never saw the case again, until I saw him at his regular work in the street. The driver says he drove him the third day after I was there.

*Case No. 4.*—A big brown gelding, one of a $1500 pair, owned in Saratoga Springs, about 1300 pounds. Eight years old, used on a private carriage. He had not been out for a few days owing to illness of the owner. On the fourth day the coachman drove him a very short distance when he saw that all was not right, so he started back for the stable. I was called, and found the animal trembling and making very great efforts to keep his hind feet under him; hardly able to stand up on his hind legs. I gave him potassium iodide, ℥ss, and had him kept as quiet as possible. This case never went down. As the man stated that he had been constipated I gave a physic pill and drew the urine, used hot packs, and in two hours you would not have thought he had ever been ill; still I gave potassium iodide, ʒi doses, every two hours for three doses. He was so large and fat I did not want to take any chances. Gave him exercise the next day and in three days he was all ready for his regular work.

*Case No. 5.*—Chestnut gelding, 6 years old, 1100 pounds. This animal was owned by myself, and was one of a pair I had recently bought. He was a little thin in flesh and as I did not wish to drive a thin horse I forced his feed; for three or four days he had not been exercised as I supposed he had, as that was my instructions, but owing to cold weather the boy did not ride him, as closer inquiries brought out. As he was being saddled for his exercise the man came to the office and stated he was all stiff behind. I made an examination and found a case of azoturia. I drew the urine and gave potassium iodide, ℥ ss, tied him up so he could not go down, and kept him very quiet, and gave potassium iodide, ʒ ii, every two hours, and one drachm every hour for six hours, and gave sodii carbonate, ʒ ii, in his drinking water, and took all food away from him for three days, at which time he was all right again.

*Case No. 6.*—Gray mare, 1200 pounds, owned in Saratoga; down and could not get up; she had been down for three or four days; she was in great pain. I gave potassium iodide, ℥ ss, in water ℥ viii, and gave ʒ ii every two hours for four doses, and then ʒ i every four hours if found necessary, and applied hot packs, drew the urine, which was dark and thick. In twenty-four hours she was up and appeared all right. This case more than surprised me, and was at her regular work in a few days.

*Case No. 7.*—Bay gelding, owned just out of town; had been drawing stone, but had been in the stable for three days. Yesterday he was let out into a yard for exercise; was out about three hours; then put in all right. In the middle of the night the owner heard a noise and went out and found him down, and, as he thought, cast. As he could not get up, I was called to see a very bad case of colic. I found the animal beaded in prespiration and in very great pain; he had thrashed and kicked the stalls all down. I drew the urine and made a diagnosis of azoturia, and in this case prognosed unfavorably. I gave potassium iodide, ℥ ss, hot packs when he was quiet enough to keep them on, and gave potassium iodide in ʒ ii doses every two

hours for six hours and then ℥i as the case indicated, and all the water he would drink, chilled. Next day I found the animal very quiet. I stopped the potassium iodide, and about 11 A. M. he got up with very little help and stayed up, and was all right in a few days. I gave nux vomica as a tonic.

*Case No. 8.*—Black mare, 1200 pounds, 10 years old, five miles out of town; she had been driven into town Saturday, Jan. 6, 1900, and on Sunday morning she was found down in the stall and could not get up; had not been out for two days before going to town. She was treated all day for colic, and as she could not get up the owner sent for a neighbor to help him get her up. This man had two of his horses just like this a year ago, and explained the nature of the disease to the owner, so I was sent for. The mare was down, but we got her up and she stood up pretty well for a while, but was quite shaky on her hind legs. I gave potassium iodide, ℥ss, and left three ℥i powders, to be given one every two hours, drew the urine and left the case, not thinking it necessary for me to see it again. The next day (Monday) she was exercised a little, and next day was at her usual work, all right. This was not a very bad case.

*Case No. 9.*—Strawberry roan mare, 1500 pounds. On Friday, Jan. 5th, at 7 A.M., I was called to see the above described mare. Her mate had been killed a few days before, and she had been left in the stable. The owner knew the nature of the disease, and cautioned the driver, a good, faithful colored man, not to feed "Nellie" too much grain while she was standing in. His answer was, as usual, "I am giving her but very little grain." However, Jan. 4, 1900, the owner made inquiries and found that "Nellie" had not been out of the stable for four days. He ordered his man to put her with another horse and drive her about one mile just for exercise, which he did between 5 and 6 P.M. He reported to the owner that everything was all right at 7.30 P.M., but as the owner was a man that knew a good deal about the disease he instructed the man to go back at 9 P.M. and see again, which was done, and all was reported well at the stable. At 6 A.M., Jan. 5th, when the

driver arrived at the stable he found things all right. He fed, and, as he was cleaning up, he saw that this mare was not just right; so he at once called the owner. As soon as he saw her he knew it was azoturia. So I was sent for. On my arrival I found the above described mare struggling very hard to keep her hind legs under her, which she failed to do, and at last went down. She was in very great pain. I gave her the usual treatment, such as hot packs, drawing urine, and gave potassium iodide ℥ss, and gave it in doses as the case indicated during the day. The owner of this animal was a very good friend of mine, and I did not want to leave anything undone in the way of saving the mare. I explained to him the success I had had with the new treatment, and as he is a man that is very well up on medicine he decided to let me go on with the potassium iodide treatment, which was a great success, and the mare made a good recovery from the disease, and the fourth and fifth days she got up and ate well and would lay down and get up as she wished; was up and walked around for seven hours one day, but by some bad management, or rather bad advice, the mare was roped and slung so much the first three days that she had bruised her near knee so badly that suppuration took place, and it terminated in an open joint. So on Monday, Jan. 15th, it was decided best to destroy her, which was done by shooting her. This case was all right, and the owner is satisfied that had she not been slung and roped up so much the first three or four days that she would have lived and gotten well from the disease, but we as veterinarians understand how in some cases animals lose their lives by mistaken kindness on the part of over-zealous neighbors and friends.

*Case No. 10.*—I have lost my notes on this case, but I remember that it had about all the usual azoturia symptoms, and I gave it the potassium iodide treatment, and it got well.

Last September, when I was away on my vacation, I visited Dr. Bland and Dr. Keeley, of Waterbury. I received some good pointers on the above disease and treatment while visiting Dr. J. H. Kelly, at New Haven, Conn. He received a tele-

phone to go to West Haven to see a case with the history of azoturia. It was a gray gelding, one of a four-horse team that went into the woods to draw wood down for a brick yard. Had been in the woods and got down on the main road, out back of Whitneyville. The Doctor asked me to go and see his case. I asked him what his success was in treating azoturia, to which he replied: "I hardly ever lose a case; I find them very desirable to treat." Well I must say from my previous experience and knowledge of the disease, and taking the history into account, I thought it a very foolish ride, but the Doctor was so positive about his case, I decided to take the fifteen-mile ride. On our arrival we found a gray gelding, about 1300 pounds, down, or rather just getting up, with quite a little help; the Doctor helped him up, and drew the urine, and got him to a near-by stable. He gave him some white powder and left some more to be given in his drinking water. Next day the horse went home, three miles. On our way back I asked the Doctor what the powder was; he told me it was potassium iodide. That was about the first I knew of this treatment for azoturia. The Doctor had another case next day, but I had to go to New York, and did not see it then, but ten days later on my way back I went out with the Doctor and saw his case. It was all over the disease, but in its struggle it fractured the shaft of the ilium, but was doing very nicely. On my arrival home I found my September REVIEW, and in due time found the article written by Dr. McClanahan, of Redding, Iowa, giving his experience with potassium iodide. He had only three cases at that time. Now I give my experiences with it. I hope in the near future to hear from others. I have about pinned my faith to it. From my past experience with it, I think this drug can be carried too far, as all others, but to take it all in all it has given me the best results, and I will continue to use it for the present. I wrote to Dr. Kelly and Dr. McClanahan, telling them of my success, but I feel as if every REVIEW reader should have my experience in this heretofore dreaded disease.

# THE TEACHING OF PRACTICAL SURGERY.

By W. L. Williams, V. S., Ithaca, N. Y.

A Paper read before the New York State Veterinary Medical Society, September, 1899.

It may sound superfluous to intimate by our title that some surgical teaching may be unpractical, but we feel warranted in retaining the term partly owing to tradition, and in part the existence of confirmatory facts.

The young veterinarian frequently meets with the rebuff that he is wholly wanting in experience and that college teaching can avail nothing until practical experience has been added.

Too often the criticism is just, the education received at college having been unpractical, necessitating his educating himself in a practical way before his services become acceptable to the public. Practical surgery is that which can best relieve suffering, enhance value or restore usefulness.

Practical surgery is scientific surgery, and to teach it to receptive students is to present the subject in a scientific manner under the best possible surroundings.

Recent years have witnessed a great revolution in the teaching of sciences, especially in biology, the text-book and lecture having been rapidly and constantly yielding largely to the laboratory, a change which has so universally commended itself to teachers of repute, that its preëminent value over the older methods has passed beyond the field of discussion.

A lecture is a word picture, perhaps illustrated by a drawing, model or other preparation, while the laboratory brings the student into the most intimate relation possible with the object of his study, enabling him to observe size, form, structure and function for himself, and in surgical science he is led to observe the cause, symptoms and course of disease, and the influence of surgical interference upon the patient, disease or organ.

The teaching of practical surgery requires in addition to the needed amount of lectures, such laboratory work as will

best fit the student to discharge his duties as a learned member of his community.

This laboratory teaching is extensive, including descriptive and surgical anatomy, physiology, histology, bacteriology, pathology and finally clinical surgery, or as we commonly express it, practical surgery.

We need only glance at the announcements of our colleges to discover that they are nominally a unit as to the comparative value of clinical surgery, nearly all of them announcing *unsurpassed*, and a number of them *unequalled* clinical teaching facilities.

Yet it must be confessed that whether they possess the facilities or not, some of them do not teach practical surgery at all, and virtually confess it. They evade their responsibility in a variety of ways.

The veterinary college having the greatest number of graduates in America, evades its duty by demanding that the students shall spend their one summer vacation with private practitioners, evidently for the purpose of learning practical surgery, which would be unnecessary if it were taught in the college. The college thus unloads upon practitioners a very grave responsibility, and assumes the position that while there are only two or three professors fitted to tell students in lectures what they will see in practice, any horse doctor is good enough to teach them the really practical part of the subject. We do not know how many practitioners have contributed toward educating the students of this college, but they probably reach in the aggregate 2500 to 5000—the largest unpaid faculty of clinical professors in the world.

Other colleges evade their duty by advising or winking clandestinely at students practicing on their own account during their vacations, claiming that such a course is as advantageous as clinical instruction with some of the members of the large faculty above cited. This shifts the responsibility for practical education upon the student himself.

Some erroneously call self-educated veterinarians charlatans or horse doctors, while to those having a certificate that they

were educated in a veterinary school they apply the alleged more reputable title of veterinarian, but when the certificate of college education is defective, and what practical knowledge the man possesses has been acquired by his own unaided effort, or with the aid of a similarly uneducated graduate, the above differentiation between veterinarian and quack becomes badly strained, and suggests that we may have among us quacks with college diplomas, but since within a decade a prominent member was ignominiously expelled from the United States Medical Association for stating that a large percentage of veterinarians in this country should feel honored by the appellation of "horse doctor," it is perhaps wise to not follow this line of thought farther. Nor is it just. The self-educated veterinarian deserves praise whether he has a diploma or not, and the uneducated practitioner is none the less pitiable or odicus by having a diploma.

A certificate of graduation from a veterinary school should at the present day be logically regarded as including a practical knowledge of surgery, and the school which fails to impart it robs the student, insults modern education, and degrades veterinary science.

Teaching practical veterinary surgery offers serious obstacles, which under their environments may be insurmountable to some schools, but while this may enlist our sympathies it does not alter the duty of the school to the student, profession or public. Neither need we apologetically say of the recent past, that the colleges did the best they knew or could afford. We face the present and future. We are rapidly passing through an important transition period, from conjecture to knowledge, from empiricism to science, from theory to practice.

Within ten years more the ignorant, uncouth, unclean quack will have disappeared, except as a rare curiosity. The ordinary non-progressive veterinarian of to-day will be the charlatan of 1910, and between him and the front rank of the profession will exist a wider gulf than he now pictures in lurid colors between himself and the quack of to-day.

The unequivocal demands of to-day are that, as with other related subjects, surgical teaching shall be practical, and that practical surgery shall be taught in the college by competent teachers, with ample equipment, and abundant material of a high order.

The proper teaching of practical surgery, like all laboratory work, is enormously expensive in money, time and labor.

The lecturer can graphically describe numerous extensive surgical procedures in less time than a student can properly clean his finger nails for an operation. No school requiring a maximum of but twelve months attendance for graduation can undertake anything more than farcical clinical instruction. They must, and do evade laboratories, except perhaps creditable dissecting rooms and a few others, but no student can in the time given possibly take up the work in a creditable manner in each of the numerous laboratories. In a course of 18 months the student must fall lamentably short of the practical study his later career will demand, and those requiring 27 months, the longest course maintained in this country, must confess their inadequacy.

Laboratory teaching of surgery multiplies the labor of the teacher, and requires greater ability, or rather his competency is put to a more exacting test.

It is easier, and at times possibly safer, to ask a student to accept a statement on faith than to have him work it out and prove it for himself in the laboratory.

Practical surgery may be taught in a variety of ways, only the more important of which we shall attempt to discuss.

We may consider the subject in two fundamental groups according to the material used for instruction purposes:

A. The cadaver.

B. The living animal.

The former is the more primitive, having been early introduced in the teaching of human surgery, and still maintaining an important position in surgical teaching. It retains all the value it ever possessed, though somewhat dimmed by the advent of other more modern methods which bring the student

into yet closer relation to the living object of his study.

In reality it belongs rather to the domain of surgical or regional anatomy, the importance of teaching which should in no wise be underestimated. It gives the student a training in surgical anatomy essential to surgical procedure, he learns the location and relations of parts or organs, and observes the post-mortem form, volume and texture of parts from which he may draw valuable conclusions regarding their character in the living world.

This teaching, call it surgical anatomy, clinical or operative surgery, should be well and extensively taught, each student being required to demonstrate his anatomical knowledge of the parts concerned in the more common of our surgical operations, repeating again and again as often as may be necessary the imitation of each operation until familiar with it.

An especially commendable course of this kind is that practiced at the University of Pennsylvania, under the able direction of Professor Adams. His course consists of 100 operations, many of which are repetitions, thus reducing the actual separate operations to the neighborhood of 50, nearly all of which are performed on the cadaver. His list includes a very large proportion of the classifiable surgical operations, omitting some which other teachers would insert, including a few which some would incline to omit.

An especially commendable feature of his plan is to have the operations carried out in as good imitation as practicable of the real procedure, and as quickly as possible after destroying the animal by bleeding or pithing. The plan is moreover inexpensive, and the time required of the student for carrying it out is comparatively brief.

It has very evident shortcomings, it fails to familiarize the student with the character and behavior of living parts under surgical interference; he learns neither to avoid nor control hæmorrhage, to guard against the contractions of muscles, to avoid the evil consequences of the struggles of the patient, and even fails to learn the form and exact location of some organs

during life, while tactile sensation, the indispensable guide in intra-abdominal surgery fails him entirely. Neither can he observe the character of parts in a diseased state, nor form an adequate idea of the difficulties met with in operating upon such. Such a course is neither sufficient nor designed to complete the student's education in practical surgery, but merely constitutes an essential and invaluable course of training, occupying logically a place between descriptive anatomy and operative surgery proper.

In our second group, the living animal, the method may vary widely. The operation may be performed by the teacher or the student.

The teacher may perform the operation, the student acting as a spectator. This constitutes the highest available form of teaching human clinical surgery and in veterinary education naturally holds an important place. Here the student sees the actual operation upon the living animal usually with curative intent. This form of teaching we might call lecture instruction with the most intense illustration possible. It is of equal importance to the foregoing, having a special value in all those operations which are wholly open and visible, but are very inferior in concealed procedures carried on within the body cavities of the patient.

In all cases it falls short of being genuine laboratory work for the student and fails to train him as an operator.

Having been so long the highest type of teaching human clinical surgery some veterinary teachers contend that if it is good enough for surgeons it should answer for veterinarians. We cannot agree. We are placed at numerous disadvantages compared with human surgeons and possess some material advantages which we should eagerly seize in order to bring our opportunities to a par with theirs. Undeniably nothing teaches a student to do a thing so well as doing it properly himself under competent guidance.

Here again we have to choose between two classes of material, worthless subjects to be destroyed as soon as they have

served the purposes of teaching, and patients of commercial value affected with a malady which it is desired to cure or alleviate, or a sound animal which it is desired to in some way modify to better serve the uses or whims of man.

Operations by the student upon comparatively worthless subjects are of very great value in surgical teaching, especially when carried out methodically as by Prof. Cadiot at Alfort. Here the student is brought into direct contact with nearly all the conditions of actual practice, the technique and methods can be effectively taught, he acquires tactile education, enabling him to recognize various organs by touch and to distinguish in the same manner diseased from healthy tissues or organs, he acquires actual experience in the control of hæmorrhage, in the guidance of the hand, and the resistance offered by various tissues to the knife or other instrument. In many operations like neurectomy all essential educational conditions are present.

The chief objections which can be urged against this method of teaching are:

1st. Its cruelty.

2d. Its failure to acquaint the student with pathological conditions.

3d. It fails to awaken that enthusiasm on the part of the student which is essential to the highest effort.

Perhaps the most serious of these is the contention that it is cruel. This may or not be and the cruelty may be material or immaterial.

In the Alfort surgical exercises the subject is operated upon under complete general anæsthesia, and destroyed during the period of insensibility. Under these conditions we fail to see any cruelty. We take worn-out animals, perhaps buy them from the harness and goad, where their lives have for a long time been an unending period of suffering, with harsh driver, insufficient food, insalubrious stable, death or an asylum for aged horses the only source of escape from pain and suffering. In most cases death comes slowly and has been well advanced before the application of the goad ceases, but by such a system

of management as suggested above, the moment of complete anæsthesia shuts out forever all pain and suffering and though theoretically he continues to live for a time, from the standpoint of humanity he has ceased to exist. While the subject is free from all pain the student acquires experience which enables him to effectively relieve suffering and disability in other animals, and has acquired his education without the infliction of pain.

For such a course a regular curriculum can and should be arranged, and should preferably be made progressive, the student advancing step by step from the simpler to the more complex operations. Any operation which can be carried out upon the cadaver with equal value to the student should be excluded from the list.

Complete anæsthesia should be secured and maintained for all painful operations, and if recovery of sensibility would involve material pain as a consequence of the operation the subject should be destroyed without regaining consciousness. Such a method should, and we believe would commend the approval of humane and antivivisection societies generally, though, of course, not satisfying some of the more radical individuals. Certainly it is more humane than the bungling which falls little short of butchery, indulged in by ineffectively educated veterinarians in the earlier years of practice.

The second objection applies only in part, Neurectomy is practically the same from an operative standpoint on a sound or unsound member, the operation being generally performed upon a part distant from the lesion it is intended to influence. In other cases the objection is serious, as for instance, cunean tenotomy for the cure of spavin is quite different in the healthy and diseased hock.

The third objection is constant and serious. It is difficult to awaken the required enthusiasm in the student over what he may term a "play" operation, and the acquiring of carelessness in technique, procedure or form in such a practice operation is strongly prone to unfavorably influence his later work as a sur-

geon. The teacher must then enforce to the highest possible degree the most careful technique in every detail.

As teachers we can go one step higher, and teach clinical surgery upon patients of value, with the student as operator. It has the immeasurable advantage of having the student do under the teacher's direction, precisely what he is to accomplish later without supervision other than the critical public eye. The disadvantages noted in operating upon worthless subjects are severally removed. It is not cruel, according to humanitarian ideas because it is intended to benefit the animal or its owner, it puts the student into direct contact with the diseased part itself, and he has a definite, beneficent object in view, calculated to fully arouse the proper enthusiasm in any but a pitiably dull student. It is the only way to teach covered surgery. A student can learn to castrate cryptorchids only by castrating them, and what is true of this operation, is more or less so of others. This method too has its objectionable features.

1. It does not admit of a regularly arranged curriculum.

2. It requires much time of the teacher, and places much responsibility upon him.

3. It may be less safe for the patient.

The first objection is not serious. The practitioner can make no curriculum, he can not on one day have a spavin to fire, on the next median neurectomy, and on the third the removal of the lateral cartilage for the cure of quittor, but must accept cases as they come, and adapt himself to the work at hand. Clinical instruction can be graded approximately. All may take part in physical diagnosis, in securing the animal, in dressing wounds, and the least experienced students can be initiated into the simpler operations, and carried forward to themore complex or detained for further repetition upon the simpler, as his progress may dictate.

The second objection relates wholly to the teacher and college. Clinical instruction by such a method places the instruc-

tor in an exceedingly trying position, he being in a measure responsible to the owner for any error or carelessness on the part of the student, along with his duty to see that the student gets the greatest possible benefit from the operation he is conducting. We have experienced no more trying ordeal than standing by while a student for the first time performs ovariotomy upon a valuable mare, the essential part of the operation being wholly concealed from view, until the ovary or some other part mistaken for it is brought out by the operator.

Yet it is practicable, and has been so proven by us. As the student progresses from one operation to another, acquiring skill and confidence at each step, the teacher is fully warranted in confiding in his ability, coolness, and resource to properly accomplish an operation which the instructor can not follow with his eye.

The third objection we note is the increased danger to the animal. This can be answered from varying points of view. If a student can not safely perform an operation under the guidance of his teacher, how can he be expected to do it well without his supervision after graduation? But one answer is possible.

We are, moreover, in a position to maintain that student operations under the eye of an instructor are not extra-hazardous to the patient.

Owing to a comparatively limited clinic in numbers, though unusually rich in variety, the New York State Veterinary College has, in order to get the highest possible results from clinical teaching, adhered closely from the foundation of the school to student operations, with the result that so far as we have been able to observe our results are fully up to the average in veterinary practice, and infinitely superior to that of many private practitioners.

We can not enter into details, but must confine ourselves to a single line of cases, which being sound animals offer a safe basis for consideration. We select the operation of spaying on bitch, cat and mare, and submit the following results.

FIRST YEAR.

| Animal. | No. | Fatalities. | Cause of Fatality. |
|---|---|---|---|
| Bitch | 26 | 0 | |
| Cat | 2 | 1 | Sepsis |
| Mare | 1 | 0 | |
| | 29 | | |

SECOND YEAR.

| | | | |
|---|---|---|---|
| Bitch | 67 | 3 | 2 Sepsis, 1 hæmorrhage |
| Cat | 8 | 1 | 1 Impure chloroform |
| Mare | 7 | | |
| | 82 | | |

THIRD YEAR.

| | | | |
|---|---|---|---|
| Bitch | 77 | 0 | |
| Cat | 13 | 1 | Chloroform |
| Mare | 8 | 0 | |
| | 98 | | |
| Total | 209 | 6 | |

Percentage of fatalities for three years, 2.87.

The fatal sepsis in the cat during the first year was partially explainable perhaps by the state of advanced pregnancy of the patient, as well as an accident during the operation. When partially recovering from anæsthesia she bit the operator severely in the hand, disturbing rather abruptly aseptic plans and technique.

The two cases of fatal sepsis in bitches during the second year were undoubtedly due to imperfect cleansing of the operator's hands, the part of surgical technique which we find most difficult of all to teach effectively to students.

By redoubling our efforts and improving our methods, our last year with 98 cases has been managed without a fatal case of sepsis.

The fatality in the bitch from hæmorrhage was due to the operator becoming in some way confused when our attention was temporarily directed elsewhere, and for some unexplainable cause tore in two the iliac artery.

The two chloroform fatalities both occurred in cats, one clearly due to impure chloroform, the quality of which had not

been suspected until after the accident, when chemical tests clearly demonstrated its impurity.

The second cat was chloroformed in a box which had been previously used for killing cats with illuminating gas.

Considering that these results have been attained in a new institution under a wholly inexperienced teacher of surgery, we believe it must be admitted that student operations are not extra-hazardous.

Certainly we shall not permit some of the accidents related above to recur, but shall constantly endeavor to fortify our methods with every possible safeguard which experience can suggest. Were we to view our results above tabulated from the commercial standpoint of the owner, rating the spaying of bitches and cats at $1.00 and the mares at $10.00 each and estimating the value of the cats and dogs which succumbed at $2.50 each, by securing free operations the owners have saved $338.00 in fees over all losses suffered, assuming that there would have been no casualties at all had the operations been performed by graduates instead of students.

In the meantime students enter upon their work with the highest enthusiasm, feeling that they are doing actual practice with definite results of value as their goal, and they vie good naturedly with each other in the aseptic or rapid healing of the wounds they have made, each student following and caring for his case which is detained in the hospital.

At the same time each student sees much of every operation, appreciates the errors and difficulties encountered by his fellows and seeks a way to avoid them for himself.

These among other considerations lead us to believe that after the proper preparation in anatomy, histology, pathology, and other foundation studies, a proper course in practical surgery should consist in addition to all that can be shown by the teacher in the lecture room or by operating upon animals in the presence of the students, of the following laboratory work by the student himself under proper supervision, in properly arranged course in logical sequence.

1. Operations upon the cadaver or surgical anatomy.

2. Operations upon cheap subjects, under anæsthesia, full details of technique being carefully observed, the animal to be destroyed while under anæsthesia, or by other means, having due regard for humanitarian ideas—we might denominate this surgical exercises.

3. Carefully graded operations upon patients with definite valuable results in view, which we may distinguish as clinical surgery proper. In this latter course it is requisite to the highest results to have ample hospital accommodations where all major cases can be detained and the results minutely followed by the student. We require each student to keep daily records of cases in his charge to be properly filed in the clinical archives of the school.

The subject needs much study and elaboration. The course of exercises on the cadaver designed by Professor Adams is admirable, while the little volumes of Pfeiffer "Operations-Cursus" and Cadiot's "Exercises de Chirurgie Hippique," the latter of which has been badly translated into English, offer suggestions of great value to teachers. These two little volumes should be carefully translated into English and made available for American students.

We hope that the near future will see a thorough awakening in the methods of teaching animal surgery, resulting in better technique, better results and very much higher attainments in the profession at large.

## EUROPHEN AS A SURGICAL DRESSING.

By Coleman Nockolds, V. S., M. D., Grand Rapids, Mich.

Among the many newer preparations used as dry dressings in veterinary practice, europhen stands out prominently as one of the best. It is not only a powerful antiseptic, its properties in that line being more pronounced than iodoform, but is comparatively non-poisonous. Although containing 28 per cent. of iodine, it liberates it so gradually when applied to secreting

surfaces that no toxic effects are observed. Europhen is resinous and adheres to the wound or part to which applied, which is of great advantage in our practice, because of the liability of the dressings to become disturbed by our patients. The europhen adhering forms a protective covering as well as a medicant. It is light and spreads over a surface five times greater than the same amount of iodoform. Being non-toxic, there are none of those outward symptoms present which so often follow the application of many surgical dressings, especially in the dog and cat. It has but slight odor, which makes it preferable, especially in the treatment of house pets. As a surgical dressing, especially for the smaller animals, it has no superior.

I prefer europhen to all other dusting powders as an application to the abdominal wound in ovarectomies. Sprinkled, or what is better, applied with a powder blower, to the orbital cavity, and upon gauze used to pack it after enucleation of the eye-ball in any of our animals, have always been followed by most satisfactory results. In ophthalmia, either simple or traumatic, simple leucoma, simple keratitis and wounds of the conjunctiva and cornea, europhen, gm. 4.00; lanolin, gm. 32.00, applied to eye or used alternately with astringents, etc., as indicated, will give pleasing results. For otitis externa, and other diseases of external auditory canal, a good application consists of europhen and boric acid, equal parts, applied with a blower after cleansing the parts. In abscesses, following the use of peroxide of hydrogen, the cavity can be sprinkled with europhen and packed with gauze. For wounds following surgical operations on fistulæ, removing tumors, for the treatment of ulcerations, incised, contused, or lacerated wounds, abrasions of the nasal mucous membrane, europhen is an ideal dressing, promoting the formation of granulation tissue, allaying irritation and maintaining as nearly an aseptic state as is possible in our practice; europhen, 1 part, olive oil, 7 parts, is a good application for burns and eruptive skin diseases of the horse and dog.

# REPORTS OF CASES.

*"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."*

## CASES OCCURRING IN AN ILLINOIS PRACTICE.*

By HUGH THOMSON, V. S., Shabbona, Ill.

Being requested by our worthy President to prepare a paper or report of cases, I choose for my subjects the following three interesting cases:

### *Volvulus Relieved by Rolling.*

Bay mare, owned by a farmer south of Waterman, about 1400 pounds. Questioning him closely in regard to the case, I found she had gotten loose at night, entered the corn crib, and was found in the morning sick with colic. She was given the regular farm remedies (saleratus and vinegar, spirits of nitre and tincture of opium) and turned into the yard, where she rolled and tumbled all day. In the evening he called on me. Being busy at the time, I sent out a dose of barium chloride, with simple syrup and water, to be followed in half an hour with cannabis indica and aconite. I told him I would get there as soon as I could, which I did in about three hours. On questioning him closely I got the history as written; symptoms as I found them, pulse 96, temperature 103°, respirations very distressed. She would get against the side of the stall and slide down, striking the floor hard; would gather her limbs under her, with the front feet resting on the floor, knees raised, hold her head between her knees a few minutes, then in a little while sit on her haunches, with her head raised high in the air and stay this way a few minutes; then arise, slide down the side of the stall, and so on. I found out that the barium had not acted except to neutralize the gases that had been present, as the owner said there had been no passage of fæces or flatus. I gave an injection of glycerine, which passed out in a couple of minutes, being slightly colored; gave more cannabis indica and aconite; then followed with an injection of soap and warm water. Concluding that I had a case of misplaced bowel, I gave my prognosis, telling him there was only one chance, and that was to induce the mare to roll, and it might make a change. So we chose a nice place by a haystack; gave an

* Read before the Illinois State Veterinary Medical Association, Nov. 15, 1899.

intravenous injection of barium chloride, and turned her loose. She began rolling and rolled on her back, with feet against the stack, and all of a sudden you could hear a noise like something dropping in a tub of water; then flatus and fæces both passed. She laid this way for about fifteen minutes, then got on her feet and began picking hay, flatus passing occasionally. I stayed all night and left in the morning, the patient being well.

*Another Case of Torsion of Intestine Recovers.*

This case was near Leland, and the history is about the same as the preceding case. When seen by me I found the patient, a brown mare, bloated, standing quiet, pulse quick and weak, breathing hard, vulva showing considerable swelling, with inflammation as if salt had been used in trying to make her urinate. This they denied emphatically. Examination per rectum revealed a swelling so large I could not get my hand in at all. I tried about ten minutes, then I decided I had a twist to handle. The cutting off of the circulation was the cause of the vulva symptoms. I punctured, gave barium chloride, but getting no action tried eserine and pilocarpine, given as a stimulant. Getting no action, I left some sodium salicylate, also gelsemium, to be followed by small doses of aconite. Before leaving I gave four capsules of charcoal, sealed tight, using the process mentioned in the REVIEW. I left word that if she died, which I believed she would, to notify me, so I could hold a post-mortem. I heard nothing for about two days, when I was requested to call and see her, which I did. I found her having muscular spasms, and on examination by rectum found the bowels moving, swelling all gone, no obstruction to prevent entrance, pulse and temperature normal, also respirations. I left gelsemium and bromide to be given. Case made complete recovery.

*Peculiar Symptoms in a Heifer.*

Two-year old heifer, in the town of Milan, had been sick a week. She was so weak she could hardly walk without falling, constantly straining as if she was trying to give birth. Her bowels were rather loose. She showed no indication of being in calf. Examination by rectum showed nothing. Could only get three fingers in the vagina, which seemed on the floor by the neck of the bladder to be swollen. I came to the conclusion that she must have been injured by the bull, so I gave an oil and opium injection, leaving some to be given occasionally,

also aconite and cannabis indica to be given along with flaxseed tea; put hot applications over the loins and to report in a couple of days, which the owner did, saying she had lost all appetite, strained continually, bowels watery, very weak and dying. I then tried homeopathic doses of arsenicum and nux alternately, with the result that the straining soon began to cease, bowels checked, appetite returned and she is now well.

*A Recovery Without a Diagnosis and Against a Prognosis.*

Durham bull, four years old, which a party near Lee, Ill., (Mr. Cofield) borrowed from Mr. Heeg, of Shabbona, and had him a little over a month, ate and drank very little the first week, when he stopped entirely. A swelling appeared on the lower part of the neck along the œsophagus. It gradually got larger till it was a foot long and as thick as a closed fist. Mr. S., thinking he was suffering from choke, passed a whip, which met with no resistance and passed the enlargement. So he turned the bull out to die, sending word to the owner, who called on me, and gave me what symptoms he had received. Refusing to pass my opinion without seeing the case, he departed, and I did not hear from him for some time, when Mr. Heeg called and said the bull was so poor and weak he could hardly rise when down, and asked me to call and see him, which I did. Not being able to decide whether it was a case of actinomycosis or choke, I concluded to operate, which I did, shaving and thoroughly disinfecting with bichloride. I laid him down, made an incision about sixteen inches long through skin, muscles and œsophagus. Finding no foreign body, I decided it must be due to the actinomyces fungus and advised destruction. The owner objected and told me to stitch him up and let him live as long as he could. So I used a strong creolin wash, about two quarts; let it flow slowly by pressing the sponge gently till it was all used, taking deep stitches in the muscles and skin, not touching the œsophagus. After the parts were thoroughly wiped, I applied a thick coating of tar, and then turned him out to die, leaving a solution of potassium iodide, ℥iv, aqua Oii, tablespoonful three times a day. What was my surprise to meet Mr. Cofield's boy three days afterwards, who told me that on that morning the bull went to the tank and drank a little water, and he did not see any of it vomited; and that the swelling was disappearing. About two weeks after I met Mr. Cofield, and he told me Mr. Heeg had taken the bull home, and he was getting along finely; they had cut the stitches and the wound had healed by first intention. I

saw the owner Saturday, Oct. 28th, and he said he was taking on flesh fast and was running with his cattle, feeling good and full of life, eating and drinking all he wanted, and the enlargement was all gone. This case to me is truly remarkable, so I concluded to bring it before the association.

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### DILATING THE OS UTERI AND IMPREGNATORS.

By FRANCIS ABELE, Quincy, Mass.

Have been called to many cases of nymphomania. In most cases I find the os closed, the passage through the neck tortuous and gnarled. In some, excellent results follow dilatation from the finger before service from the bull. In some only a small part of the passage can be started in one day. Advantage gained can be held by a plug of oiled cotton and the rest of the dilation done later. Have tried to dilate with mechanical appliances, but as the os is apt to be curled upwards, puncture is apt to enter the abdomen, producing no benefit but possible harm.

A mare that had bred regularly and then stopped for two years I treated and she again bred.

Would this happen if the female were served at first heat after parturition? It is usually found in an animal that has had a rest.

Patent impregnators were once used, but if you can't get your finger or even a probe through, how can you get the impregnator through? If you cut with a knife, what prevents cutting completely through the sides or ends of the same and entering the abdominal cavity without making the connection sought?

Tried spring dilators with best success, but even that is not sure. I hear of many fine milch cows beefed because of barrenness. In a dairy district where hay is $20 a ton and every pound of feed is bought, every inch of space of great value and all labor calls for cash, a barren cow is a big loss, and if a sure cure can be had, a dairyman would pay well for it.

It seems to me that the bulk of our literature on the subject is the advertisements of dealers. What is the proportion of cures?

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### PHYSIC A PREVENTIVE FOR PARTURIENT APOPLEXY.

By FRANCIS ABELE, V. S., Quincy, Mass.

I have usually told dairymen that if a cow is given a good cathartic just after calving, parturient apoplexy is warded off.

A little over a year ago I was called to a parturient apoplexy case in a very valuable Jersey; Brewer stock. What seemed a hopeless case, by treatment and excellent nursing, recovered. This year the cathartic was given, and a mild case only followed; such as weakness in hind parts and slight drowsiness.

Another cow of same herd calved, received a good cathartic, developed a nice case of parturient apoplexy combined with diarrhœa and enteritis. This merely shows very forcibly that the physic does not necessarily prevent the disease at onset, although I could cite many cases to show a benefit.

### THE ETIOLOGY AND PREVENTION OF SHOE-BOIL.

By A. W. Baker, V. S., Brasher Falls, N. Y.

I think Dr. George J. Goubeaud is on the right track regarding the cause of shoe-boils, and am myself of the opinion that they are not always the result of the horse lying with the elbow resting on the shoe, as I have seen them on horses that had their shoes removed and the feet packed. I found in one case in my infirmary that the elbow rested on the floor and did not come in contact with the shoe or foot. At first, at a loss to remedy this evil, I finally overcame it by taking a pad six inches thick, eight inches wide, and sixteen inches long, which I put across the sternum behind the elbows, and fastened it securely there by means of a surcingle tightly fastened. The result was so satisfactory that I have ever since employed it; also after operating on a shoe-boil that has become fibrous.

## DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
*of the McKillip Veterinary College, Chicago, Ill.*

### ANTISEPTIC WOUND TREATMENT (CONTINUED FROM PAGE 814).

*Occlusive Dressings of the Trunk.**

The experienced surgeon need not be reminded of the difficulties in this connection. It matters not how ingeniously we apply fabric bandages to the body of our patients they (the bandages) will not remain undisturbed long enough nor well enough to perform their mission, and besides the enormous amount of material required to bandage the hip, the stifle, the thorax, etc.,

* "Trunk" refers to all parts of the body except the lower part of the extremities.

is too great to warrant their use in wounds of these parts even if they could be properly adjusted and retained.

The substances recommended to the readers of the department of surgery, for the purpose of protecting trunk wounds, are :—

1. Tarry substances :
(*a*) Pine charcoal tar.
(*b*) Canada balsam.
(*c*) Rosin and oil mixtures.
2. Ether mixtures :
(*a*) Collodion.
(*b*) Flexible collodion.
(*c*) Iodoform ether 5%.
(*d*) Saturated solution of rosin in ether.
2. Drying powders :
(*a*) Iodoform sugar.
(*b*) Iodoform starch.
(*c*) Boric acid.
(*d*) Europhen.
(*e*) Protargol.
4. Miscellaneous substances :
(*a*) Creolin.
(*b*) Kerosene.
(*c*) Mercuric chlorid 1%.
(*d*) Chlorozone.
5. Cotton wool and oakum.

*Tarry Substances.*—The preparations above enumerated are frequently useful in protecting sutured wounds of the body, but have the disadvantage of becoming too liquid at the heat of the body and thus impair their usefulness. On a small wound pine tar, or, what is still better, Canada balsam, smeared over the surface and then matted with cotton wool will occasionally give some satisfaction. A mixture of rosin, seven parts, and castor oil, one part, mixed by the aid of heat, will firmly adhere to the skin but like the tars will not promptly become hard at the heat of the body, and if made harder by the addition of more rosin it would have to be applied hot, hot enough to burn the tissues. A substance that is liquid enough to smear over a wound, at a temperature of about 110° Fahr., and that would become hardened yet flexible at the temperature of the body, cannot readily be found.

*Ether Mixtures.*—These mixtures on account of being easily applied as well as for their perfect occlusive properties

are indeed valuable preparations, but their indications are restricted to a single class of wounds, *i. e.*, sutured wounds. They are applied by painting or spraying until a thick coating is formed. Iodoform ether and rosin ether are the most suitable for veterinary purposes. The former, although less occlusive than the latter, has the advantage of being readily removed when redressing or further treatment becomes necessary.

*Drying Powders.*—Many wounds if liberally sprinkled with dry powders while still wet will heal under the artificial scab thus formed, especially if the sprinking is repeated often, but the method is by no means satisfactory. Protargol and iodoform sugar are probably the best.

*Miscellaneous Substances.*—In certain classes of wounds, especially those that will not admit of suturing or closing in any other manner, as, for example, large lacerations of the thigh, it is necessary to protect them with chemical substances that are actually cauterant. A one per cent. solution of mercuric chlorid, pure creolin, kerosene oil, probably all act in the same manner by slightly cauterizing the tissues and thus forming an even occlusive cover. Such treatment will of course slightly retard regeneration, but is the best method of preventing serious terminations from open wounds.

*Cotton and Oakum.*—These wools are useful in punctured wounds to protect against intruding organisms as well as to absorb wound secretions. They are applied soaked in antiseptic solutions and held in place either with sutures or by packing them firmly into the orifice.

It is now seen how complex, difficult and unsatisfactory is the task of properly occluding the wounds that cannot be clothed with fabrics, but to take advantage of all that can be done in this direction let us classify this large category of wounds and discuss the possibilities in each class:—

1. Sutured wounds that require no drainage.
2. Sutured wounds that require drainage.
3. Punctured wounds, including fistulous tracts, having good drainage.
4. Punctured wounds, including fistulous tracts, having no satisfactory drainage.
5. Large or small lacerations that cannot be sutured and must be treated as open wounds.

1. *Sutured Wounds that Require No Drainage.*—This class of wounds are very common, and unless located where there is much motion they should heal by immediate union. The

treatment properly executed to the point where the occlusive dressing is to be applied, the next step is to dry the wound and its environments with clean cotton dipped in boric acid powder. As soon as all the hæmorrhage and moisture is perfectly disposed of, the stitches and a liberal surface around them are painted or sprayed with a saturated solution of rosin in ether. The ether will rapidly evaporate and leave a thin coat of rosin firmly adhering to the skin. The heat of the body will keep the rosin flexible enough to prevent its breaking up or cracking as might be expected. Such a coating can be made as thick as desired by adding layer upon layer as fast as the ether evaporates. The process requires some patience, but when applied the dressing is the most perfect imaginable and by far supersedes all others. A wound so clothed is safe against external influences and will therefore heal accordingly. The only barrier against universal success is the movements of the patient. No wound can heal with minimum inflammation unless the part is quiet, so here we are at a disadvantage varying according to the location of the wound and the complacency of the animal.

The other adhesive substances that may be utilized in the same manner, such as collodion, Canada balsam and tar, are in no way equal in value to the rosin and ether mixture.

2. *Sutured Wounds Requiring Drainage.*—The surgeon must always estimate the amount of secretion that will flow from a wound in order to provide the proper form of dressing. The mixture above mentioned will perfectly protect a sutured wouud, but if there is much secretion and no drainage provision is made the coating will be pushed off by the outward pressure of the secretion, and even the suturing may be completely broken open. So therefore in this class of wound in addition to the above technique a liberal opening must be made to allow the secretions to flow downward. The opening is wadded with antiseptic cotton wool and then sprayed with iodoform ether to prevent infection through that channel. Renewing the cotton once a day without disturbing the covered stitches is usually all the treatment such a wound will require. Antiseptic irrigation through the opening is not essential (and might even be harmful) except when there is evidence or suspicion of sepsis. When irrigation actually becomes necessary it must be performed gently, so as not to disturb the sutures.

3. *Well Drained Punctures and Fistulæ.*—It is only seldom that the veterinarian meets with this class and when they are met with the occlusive dressing is simple. Wadding the open-

ing with antiseptic cotton or oakum and holding it in place with a stitch or two, or by packing it firmly into the orifice, and then spraying the whole area with iodoform ether constitutes the best form of occlusion. Such dressings might well be left undisturbed for forty-eight hours after the first dressing, but subsequently daily dressing is demanded.

4. *Poorly Drained Punctures and Fistulæ.*—The greater number of deep lesions belong to this class, for it is indeed seldom that a punctured wound can be provided with the best drainage, and as for chronic fistulæ it is usually poor drainage that perpetuates their existence. To permit such wounds to secrete pus indefinitely and treat them by mere irrigation with antiseptic solution without attempting to sterilize them as is the usual course pursued in fistulæ of the withers and poll-evil, savors of poor surgery. A successful method of cutting short their existence consists (1) of perfectly sterilizing every recess, (2) drying every recess with antiseptic cotton, (3) spraying every recess with iodoform ether and (4) packing every recess including the whole cavity with powdered boric acid. (The latter drug is selected on account of its small cost.) A wound thus treated is safe against intruding organisms forty-eight hours or even longer, when the whole process excluding the first step should be repeated, and then again every two or three days until the healing process is complete. It might be argued that such treatment is rather expensive in veterinary patients, but really it is not when one considers that the healing period is considerably shortened.

On the poll, withers, acnestis and croup, the occlusion can be further perfected with fabric covering held in place with bands encircling the body, but these must always be kept clean, and the parts beneath the wound must never be permitted to accumulate the desiccated secretions.

5. *Lacerated Wounds that Cannot be Sutured, i. e., Open Wound Treatment.*—These wounds, which are very numerous in veterinary patients, must be dealt with according to their extent. Small ones, or mere excoriations, can be satisfactorily protected by dusting them repeatedly with iodoform sugar until an artificial scab has been formed. The larger ones probably constitute the most serious of all wounds. Burnett's Disinfecting Fluid, 2 per cent., Lugal's Solution, Mercuric Chlorid, 1 per cent., Chlorozone (Gray) and Tincture Iodine, 25 per cent., are all useful drugs for protecting such wounds, but the first named is doubtless the most effectual. They are used for

the purpose of cauterizing the tissue and thus form a clothing until nature itself puts up its own wall against infection. After a few days weaker solutions may be used. Spraying such wounds with kerosene oil, oil of turpentine, or pure creolin is also an effectual method of protecting them. Kerosene must not be belittled in this connection, for if sprayed carefully into a wound it will form just the very coating the surgeon desires and will then not blister the parts beneath.

*The Routine of Wound Treatment.*

1. Its examination.
2. Removal of all foreign matter and tissues that will become necrotic, or are already dead.
3. Its sterilization.
4. Arrest of all hæmorrhage.
5. Suturing and draining.
6. Protecting against infection during regeneration.

1. *Examination of a Wound.*—Whether surgical or accidental a wound must be carefully examined before it can be intelligently treated. The importance of drainage, the prerequisites of occlusive dressings and the dangers of septic diseases already enumerated should be a warning to the thoughtless and careless surgeon. The examination should determine the subsequent steps of the treatment. It is advisable first to make a careful inspection and if satisfied there are no hidden recesses, foreign matter or injured textures requiring special attention, no farther manual examination should be attempted, for in spite of our cleanliness the fingers are dangerous infection carriers; but when the eyes cannot inspect every recess palpation should not be omitted. Palpate with metallic probes, and then the fingers, if still in doubt, but never with the fingers until other methods have been exhausted.

As already stated the examination enables us to outline intelligent treatment. We determine whether or not there are foreign bodies to be removed, whether this or that shred has sufficient blood supply to warrant its preservation and retention in the wound, we note every recess that will require sterilizing, we observe the source of the hæmorrhage and decide upon methods to control it, we decide upon what form of suturing is indicated and devise means for drainage, and finally we determine what form of protection will be most effectual. So therefore we see that the examination of a wound like the diagnosis of internal lesions is essential in order to apply rational therapy.

(*To be continued.*)

## SURGICAL ITEMS.

The veterinarian who arrives at the right diagnosis by means of his professional knowledge will have success with his therapy where the incompetent fails, and he will never undertake to cure hopeless conditions.

A veterinarian should possess a healthy, well-trained mind, and to a certain degree a strong body, well-trained senses, be a master of knowledge and skill, and have a soul free from self-conceit and prejudice. The one who shrinks to take his coat off when necessary or who is afraid to make himself useful because he will have to wash his hands afterwards, or who tries to practice surgery with long finger nails and gold rings on his fingers, will never satisfy himself nor anyone else.

The attainment (Geschick) that enables one to execute the tender, caressing examinations on a spoiled pet dog, cat or bird of a fashionable lady; to succeed over a vicious horse or an uncouth bull; to behave properly in a low, dirty pig pen or chicken coop; to examine in the presence of an overbearing, self-conceited, all-knowing horse-owner, trainer or farmer, in the simplest, safest and usual manner, and still not only preserve but elevate his personal and professional reputation, is no more an inborn principle than the "practical eye," but is acquired only by practice.—*Translated for the Department of Surgery from Hoffmann's Veterinary Surgery, by Wm. Schumacher, Vet. Student.*

The operations which the veterinarian should test and report for the purpose of determining their true worth are: Cunean tenotomy, for spavin lameness, peroneal tenotomy for string-halt, arytenoideraphy, trephining the cranium for gid in sheep, oöphorectomy for tails witching, neurectomy of the superior branch of the trigemini for twitching of the head, myotomy for tick, neurectomy of the cervical sympathetic chains for epilepsy, removal of the external alveolar plate for extracting molar teeth (Williams), dentistry for side-reining in driving horses, adjustment of artificial rings in tracheal stenosis. Wanted also, methods of curing alveolar nasal fistulæ; methods of preventing tracheal stenosis after tracheotomy; methods of curing string-halt, weaving, cribbing, salivary (Steno) fistulæ, forging from conformation, periodic ophthalmia; methods of applying strictly occlusive dressing to wounds where fabric bandages cannot be adjusted and retained; conservative indications and contraindications for the various neurectomy operations; satisfactory methods of castrating adult sheep and goats; and

methods of preventing curling after trimming the ears of dogs, etc., *ad infinitum*.—(L. A. M.)

The number of chemical antiseptics used in wound treatment should not be numerous. Better to learn the true worth and the proper use of one or two drugs than to use many different ones indiscriminately. The liberal use of soap, water and a scrubbing brush on the patient and hands, and intelligent sterilization of the instruments means more to the educated surgeon than all the antiseptic chemical substances in the pharmacopœia.—(L. A. M.)

## EXTRACTS FROM EXCHANGES.

### FRENCH REVIEW.

ENORMOUS INFLAMMATORY GROWTHS OF THE EXTREMITIES AFTER ACCIDENTAL WOUNDS [*By Prof. A. Labat*].—Some wounds, especially those of the extremities, when they are neglected and secondarily infected, have a marked tendency to granulate, and the granulating of these wounds may assume enormous proportions. Among many cases that he has observed, the author recalls three principal ones—one which was not treated for reasons of economy and two that recovered. In the first the wound formed two tumors, one in front and the other on the outside and back of the leg. It resulted from an application of bichromate of potassium ointment a few days after firing of the tendons of the left hind fetlock. In the second, a mare fired with points on the tendons of her swollen hind legs, which she rubbed and tore with her teeth. The granulating mass which followed on the right leg, occupied the posterior border of the leg, firmly attached to the tendon by a wide base extending from the hock to the fetlock and spreading on both lateral surfaces. After it was removed the whole mass weighed 6 kilog., 500 gr. (13 pounds). In the third case, a horse, being frightened by an automobile, was thrown, badly burned with the oil of the lighted lamp of the wagon which he was pulling and seriously wounded on the right leg. Some of the burns healed well but others did not, and with the wound of the leg resulted a fearful granulating wound on the front of the cannon, which had its base spreading over the anterior and lateral face of the metatarsus, from the hock down to the fetlock, which it overlapped. When removed the mass weighed 7 kilog. (14

pounds). The recovery was perfect. In these two last cases the treatment consisted in the classical amputation of the growth with the elastic ligature, and the use of antiseptic dressings and bandages, with systematic cold water sprinkling douches—varying in duration from 15 to 20 minutes—through which the wounds were thoroughly washed and cleaned and by which the healing of the wound was stimulated.—(*Revue Vet.*)

BICHLORIDE OF MERCURY IN THE TREATMENT OF DEEP PUNCTURED WOUND OF THE FOOT [*By N. J. Bowmay*].—The use of this powerful escharotic in the treatment of those kinds of wounds is not new. In 1723 the old French author, Solleysel, patronized it and in more modern epoch Bouley advocated its use. The author gives the description of three cases and of a number with which most satisfactory results and a very rapid recovery were obtained. In the first case, the injury existed in the inner lateral lacunæ of the frog. The animal was required to work in the day. In the second case, the wound was located on the external lacunæ of the frog and the animal was exceedingly lame and synovia escaped from the wound. With him the treatment lasted longer. The third case was a mare which had picked up a nail with her right hind foot. Treated first with sulphate of copper baths. She was very lame with a fistulous tract at the point of the frog, from which reddish purulent synovia was escaping. The recovery with her took place after two weeks. The treatment prescribed by Mr. B. consists in the following: Careful paring of the sole of the frog, principally round the seat of the injury, then introducing a grooved directory in the wound as far as possible, pack in the groove as much of pulverized bichloride as will go in. This can be repeated two or three times or even more. A simple dry dressing is put over the parts. The author concludes that this mode of treatment has been very satisfactory with him, and that out of 18 bad cases he has had to treat, all recovered with this process and without the severe surgical classical operation, which ought not to be resorted to until the bichloride has failed.—(*Rev. Vet.*)

METATARSO-PHALANGEAL JOINTS TORN OPEN [*By Mr. A. Barbier*].—The lesions that occurred in this case are extremely rare. A saddle horse had in galoping, already jumped over several obstacles, when after passing a space of moderate width, he suddenly fell, and notwithstanding violent efforts was unable to rise except on his fore quarters. The hind legs were completely disabled. Both fetlocks were liter-

ally ruptured—the lower part of the leg below the joint was hanging loose and attached to these gment above by the flexor tendon and the skin. The fetlock joints were open on their whole extent except on the posterior face. The lower extremity of the principal metatarsal bones was protruding; the skin, extensor tendons, lateral sesamoid ligaments, as well as the anterior and lateral metatarso-phalangeals. were torn. Alone the suspensory ligament and the flexor tendons close and hold together the joint behind. Profuse hæmorrhage had taken place by tearing of the arteries and collateral veins.—(*Rec. de Med. Vet.*)

Successful Reduction of an Eventuation in a Horse [*By M. E. Bollet*].—One more success in abdominal surgery is recorded by the author with the help of antisepsis. A gelding, after a fall on a plow, had a wound on the right side of the abdomen, some 10 centimetres from the linea alba, and 25 from the xyphoid appendix of the sternum; through this wound about 0.60 centimetres of the small intestine were protruding. The animal was thrown and placed in the dorsal position. The intestines were washed with boric solution (40 gramms for 1 litre of water), and afterwards with sublimate (1:1000). The wound had to be enlarged to allow of the reduction. The parts were sewed with interrupted sutures with a coat of iodoform thrown between and over the edges of the wound. The after treatment consisted in washing with cresyled water (30:1000), sublimate solution twice a day, and dusting with iodoform; and careful diet; after ten days the sutures had fallen off, the wound was rosy, without suppuration, and no hernia returned. —(*Rec. de Med. Vet.*)

## ENGLISH REVIEW.

A Canine Abdominal Cryptorchid [*By Prof. Hobday*].—If it is not uncommon to meet with dogs and cats having only one descended testicle, cases are not so frequent where both organs are retained in the abdomen. An Irish terrier to be cured of its wandering propensities, was brought to the author to be castrated. He was laid on the operating table and placed under chloroform, but searching for the testicles, failed to discover or feel them, before or after the scrotum was opened. The wound was sutured and covered with antiseptic iodoform dressing. A few days after laparotomy was performed on the median line about half an inch in front of the opening of the prepuce.

The testicles were found lying close to the internal abdominal ring. They were withdrawn and removed after ligature of the spermatic artery. The dog recovered in a few days. He has become reconciled to his condition and behaves well. The testicles were about two-thirds the normal size.—(*Vet. Rec.*) [This circumstance is overshadowed by a litter of three St. Bernard dogs, owned by Mr. A. H. Van Brunt, Amersfort Place, Brooklyn, N. Y., who only have one descended testicle among the three dogs—five being retained within the abdominal cavity. This also reminds us of a case we saw in the practice of Dr. Geo. H. Berns, of Brooklyn. Having a dog presented for operation for the removal of a tumor located just in front of the prepuce, it was found upon exploration that it was a large testicle, and on incising the scrotum the enlarged vas deferens and cord were found to occupy the usual situation of the testicle. Amputation of the cord toward the inguinal ring enabled the operator to pull the testicle out of its cavity, the cord drawing easily through the channel in which it had been lying.—R. R. B.]

Rupture of the Gastrocnemius Tendon Without Injury to the Skin [*By Prof. Hobday*].—A fox terrier had a peculiar fashion of walking with one hind leg, the tarsus coming in contact with the ground, very much like that of a rabbit. There was no wound; the leg was not painful; a space between the divided ends of the tendon was readily felt. Bandages and other various means having failed, it was decided to resort to an operation. Under the strictest antiseptic precautions an incision was made through the skin over the tendons; their ends were dissected, scraped, brought together with three silkworm gut sutures. The skin being sewed with silk, the wound was covered with gauze and bandage and a metal splint applied to relieve the straining of the tendon. Except a little too free granulating of the wound, readily remedied, the animal made a rapid recovery.—(*Vet. Journ.*)

Imperforate Hymen [*By Mr. J. H. Wilson*].—"Similar cases recorded are exceedingly few, and none are to be found in English veterinary literature," is written by Fleming in his "Obstetrics," and on this account the case deserves attention. Although the time for calving had arrived, a cow was behind for a week, when she showed some indication that the moment was soon to arrive; but after a few days of waiting, no calf coming, the author was sent for. Evidently the cow was pregnant; on vaginal examination, this was found very small,

and some little force had to be used to enter it, to then discover immediately anterior to the meatus urinarius, a hymen which had a very small aperture at the top at the right side, and a slightly larger one at the bottom. Further on through the vagina, the dilated os was felt and the calf's nose protruding through the fœtal membranes. A plug of oakum with extract of belladonna was introduced into the opening, but although it enlarged some the calf had to be delivered with force. This was done with difficulty, the vagina giving away at its upper commissure. The wound was well sewed with skewers and figure 8 sutures and healed rapidly. The cow recovered without any further trouble.—(*Vet. Record.*)

## BELGIAN REVIEW.

REMOVAL OF THE ENTIRE UDDER OF A COW—RECOVERY [*By Prof. Hendrickx*].—The ablation of part of the mammary gland has been performed, and cases of recovery have been recorded; that presented by the author of the entire mass of the udder has not yet been described in our classical works nor been recorded in our literature. Probably as sequelæ of foot-and-mouth disease the mammary gland has undergone extensive degeneration and was transformed into a very large mass, lobulated, irregular on its surface and showing about ten little openings, through which pus escaped. The tissue proper of the gland was transformed into a solid mass with the consistency of fibrous tissue. The mammary lymphatic glands were hypertrophied. The condition of the cow was rather poor, her appetite delicate. Tuberculine being injected, and no reaction produced, the trouble was not of tuberculous nature. Attempts were made to obtain a resolution, but failing in this, it was decided to resort to operation, which the author describes as follows:—After careful antiseptic washing of the parts, an incision, melon rib shape, is made, passing on each side four fingers wide outside of the teats and including the skin and subcutaneous cellular tissue, but leaving the membrane proper of the gland intact. The dissection of the cellular tissue is made easily with the fingers, except where old fistulous tracts exist, when scissors have to be used. When the dissection is carried far enough, the hand is pushed between the skin and the membrane proper until the udder is entirely isolated on one side. This separation is carried as far up as possible towards the inguinal canal, when there an incision is made through the udder

proper envelope, which is enlarged by tearing with the fingers. The superior and external border of the glands are raised and a large vasculo-nervous cord, formed by the mammary vessels and nerve, is felt. In this case the artery is as large as a carotid. Two ligatures are applied on it, and the cord divided between them. The dissection of the internal face of the gland is carried out without hæmorrhage of any amount. This step is done easily with the fingers except in two places where the subcutaneous abdominal and the perineal veins are situated. Those were secured with ligatures. The dissection of the other half of the gland was done in the same manner. The wound left measured 50 centimetres in length and 25 in width. The mass removed weighed 29 pounds. Cicatrization by first intention could not be obtained nor was it attempted. The dressing consisted in phenicated dressings, absorbent and antiseptic pulverizations and giving about three times a day of solution of formaline at 5 %. Six weeks were necessary to obtain a complete cicatrization.—(*Annales de Belge.*)

ENORMOUS LIPOMA IN A HORSE [*By Prof. Hendrickx*]. —When only a colt this horse had a small tumor in the right flank; it kept growing and to-day, the horse being six years old, the tumor is enormous. Involving the right flank, it extends from the transverse processes of the lumbar vertebræ downwards to a level with the stifle joint and fold of the groin, and from backwards forwards from the external angle of the ilium to the hypochondriac region. It is bosselated on its surface, not painful to pressure, rather firm in consistency above, soft and almost fluctuating below. There is no œdema around. It measures 92 centimetres in length, 43 in width, and in its apparent thickness 45. It is not a hernial tumor; rectal examination shows this, but it also reveals the fact that the neoplasm protrudes on the inside of the abdomen. A diagnosis of benignant tumor, probably fibro-lipoma, is made, and operation is the only means of relief. This is attempted. The animal cast, the region disinfected, an elliptic incision is made, and the subcutaneous cellular tissue is easily divided with the fingers on the posterior part of the tumor. In front the scalpel is necessary to divide firm bands of condensed cellular tissue. The superior border of the tumor is exposed, and then it becomes evident that the tumor extends between the muscular coats, and on the deep surface is separated from the abdomen only by the fascia transversalis and the peritoneum. The removal of the tumor is materially impossible, and the

horse was killed. The operation was nevertheless completed, and a mass of fatty tissue was extracted, weighing 84 pounds. The fatty substance was arranged by superposed layers, isolated by the muscles of the region, with numerous ture fasciculi of fat running through the thickness of the various layers and establishing between those of the neoplasm an intimate continuity.—(*Annales de Belge.*)

PARALYSIS OF THE TAIL AND OF THE SPHINCTERS IN A MARE [*By P. Rubray*].—The symptomatic triology, *inertia of the tail*, *involuntary expulsion of the fæces* and *repeated micturation*, is expression of sceloris of the cauda equina, the terminal extremity of the spinal cord. But it may also be the result of fractures of the sacral vertebræ. This is proved by the following case. A thoroughbred mare is suffering with the three symptoms. She walks well, but now and then some of her steps are accompanied with expulsion of urine. Her tail is soiled with fæces and urine. The tail is powerless, and can be pulled in any direction without painful manifestation from the animal. Pricks with needles on the whole length of the tail give rise to no pain. The anal sphincter is relaxed, the anus gaping and open; there is no muscular contraction; the skin and mucous membrane of the anus are entirely feelingless. The vulva is enlarged also, and more or less open. The neck of the bladder is paralyzed. There is no apparent deformity of the croup, no mark of any traumatism. Rectal examination reveals no lesion of the nervous trunks of the sphincters of the tail. The animal was for a long time submitted to various forms of treatment, but without any benefit whatever, and she was destroyed. Although post-mortem was not as minute and as satisfactory as it might have been, a sufficient lesion to explain the series of symptoms was found, viz., a fracture of the sacrum, involving the second vertebræ, which had been, so to speak, crushed, and a portion of its spongy structure pushed into the vertebral canal, which is almost entirely filled by the bony substance. The annular portion between the second and third spinous processes had also been fractured. It is evident that there had been a complete pressure on the spinal cord and the nerves of the cauda equina.—(*Annales de Belge.*)

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SALOPHEN, in two to five grain pills two or three times daily, is a remarkably effective agent for rheumatism in the dog, especially of the subacute variety.

# PROPOSED IOWA VETERINARY PRACTICE ACT.

*House File No. 179—By Koto. Public Health.*

A BILL FOR AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE, SURGERY AND DENTISTRY IN THE STATE OF IOWA.

*Be it Enacted by the General Assembly of the State of Iowa:*

Section 1. That it shall be unlawful for any person to practice veterinary medicine, surgery or dentistry in this state, who shall not have complied with the provisions of this act.

Sec. 2. Any person who has practiced the profession of veterinary medicine, surgery or dentistry as a livelihood in this state, for a period of five years immediately preceding the passage of this act, may be deemed eligible to registration as an existing practitioner, and receive a certificate of registration, upon presentation to the secretary of the Board of Veterinary Medical Examiners, which shall be hereinafter constituted, his sworn affidavit and letters of recommendation from ten reputable freeholders and stock owners in his locality, all such applications to be made on or before January 1, 1901.

Sec. 3. Any person who is a graduate of a legally chartered and authorized veterinary college or veterinary department of State university, at the time of the passage of this act, or who shall hold a diploma from such institutions prior to 1901, shall be entitled to registration as an existing practitioner, upon the presentation of his diploma, certified by affidavit.

Sec. 4. The governor of the state shall appoint a board of examiners, within sixty days after the passage of this act, said board to be known as the State Board of Veterinary Medical Examiners. This board shall consist of three qualified veterinarians, residents of the state, each of whom shall be a graduate of a legally chartered and authorized veterinary college or veterinary department of State university, and who shall be of good standing in the profession.

One of these members shall be appointed for one year; one for two years; and each succeeding appointment shall be for three years.

Each shall hold office until his successor is duly appointed and qualified.

No member of any veterinary college or veterinary department of State university, or any person connected therewith shall be eligible to appointment upon said board.

The governor shall fill any vacancy which shall occur on the board, and may remove any member of said board for continued neglect of duty, for incompetency, unprofessional, or dishonorable conduct.

Sec. 5. This board shall have power to make all needed regulations for its government and proper discharge of its duties in accordance with this act, and shall have power to administer oaths, and take testimony concerning all matters within its jurisdiction.

Sec. 6. The meetings of the examining board shall be held at least once a year, or at such times and places as it may elect. At any meeting of the board, a majority shall constitute a quorum to transact business, or to conduct examinations.

Sec. 7. Said board shall receive applications for registration, according to sections two and three of this act, and shall issue a certificate of qualification to all applicants who conform to the requirements for such registration, signed by the members of the board, provided that the certificate thus granted specifically and plainly states whether or not the one to whom it is granted is a graduate or non-graduate in veterinary medicine. Such certificate shall be conclusive as to the rights of the lawful holder of the same to practice veterinary medicine, surgery or dentistry in this state.

Sec. 8. The fee for registration shall be five dollars ($5), payable in advance to the secretary of the board.

Sec. 9. From and after January 1, 1901, any person not heretofore authorized to practice veterinary medicine, surgery and dentistry in this state, and desiring to enter upon such practice, shall be a graduate of a legally chartered and recognized veterinary college or veterinary department of State university, and shall pass the examination required by said State Board of Veterinary Medical Examiners.

The fee for such examination shall be fifteen dollars ($15), payable in advance to the secretary of the board. The applicant shall be at least twenty-one years of age and of good moral character. Any person conforming to these requirements shall receive a license to practice veterinary medicine, surgery or dentistry within this state, signed by members of the board, which license shall be recorded in the office of the recorder of the county in which said person resides, the recording fee to be paid by holder of certificate.

Sec. 10. The board shall keep a register of all registered practitioners in the state, setting forth such facts as the board

shall see fit. All fees accruing under this act shall be held by the treasurer of the board, who shall execute good and sufficient bond to said board to faithfully discharge his duties, and who shall pay out such funds, only, on vouchers certified by a majority of said board.

Sec. 11. Each member of said board shall be entitled to receive five dollars ($5) per diem, and necessary traveling and incidental expenses, incurred while actually engaged in the discharge of his official duties, provided such compensation and expenses does not exceed said income of fees accruing under this act.

Sec. 12. Any person violating any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not more than ninety days for each and every such offense.

All fines received under this act shall be paid into the common school fund of the county in which such conviction takes place.

It shall be the duty of the county attorney of the county in which violation occurs to conduct all proceedings against violators of this act.

Sec. 13. Nothing in this act shall be construed to apply to commissioned veterinarians in the United States army or to persons who dehorn cattle, or castrate domestic animals, or to persons who gratuitously treat diseased animals.

Sec. 14. Any person who shall, without having been authorized so to do legally append any veterinary title to his name or shall assume or advertise any veterinary title in such manner as to convey the impression that he is a lawful practitioner of veterinary medicine, or any of its branches, shall be guilty of a misdemeanor, and punished according to the provisions of section 12 of this act.

Sec. 15. And in case the examination of said person shall prove defective and unsatisfactory and his name be not registered, he shall be permitted to present himself for re-examination, within any period not exceeding twelve months, next thereafter, and no charges shall be made for re-examination.

Sec. 16. After registration, an annual fee of one dollar for a renewal certificate shall be paid on or before the first day of January of each year.

Any holder of said renewal certificate will be deemed eligi-

ble to practice at any place in this state. Any person practicing veterinary medicine, surgery or dentistry, without this renewal certificate, will be guilty of a misdemeanor.

Sec. 17. This act, being deemed of immediate importance, shall take effect and be in force from and after its publication in the *Iowa State Register* and *Des Moines Leader*, newspapers published in the state of Iowa, and city of Des Moines.

## CORRESPONDENCE.

### WORKING FOR THE ARMY BILL.

EXETER, N. H., February 21, 1900.

*Editors American Veterinary Review:*

DEAS SIRS:—Thinking that it would be pleasing to the readers of the REVIEW to know what is being done for the promotion of the Army bill, I wish to say that on the 17th inst. I mailed to our two Senators, and our Congressman, letters and petitions pointing out to them the salient features of such a bill. My petition was signed by the most prominent citizens of my territory, composed of merchants and professional men, legal, medical and clerical, as well as the faculty of the Phillips Exeter Academy, selecting only men who could appreciate the importance of such a measure. My letters to the representatives were substantially of this nature, and I wish to say that it was remarkable that they were unanimous in their belief that such a bill should surely pass; also that the majority were surprised that such a corps was not in existence. I obtained over 100 signatures in two days, and could have found 1000, easily. I think if our brethren of other States would get down to energetic effort, they could by selecting the proper signatures to present to their representatives, realize success. One of our representatives (Senator Gallinger) acknowledged the petition and letter very handsomely, promising to give it proper attention. The *Congressional Record* of Monday, the 19th inst., published the presentation of my letter and petition. I had only asked for the support of this gentleman, but he has performed his duty to our profession handsomely. If you look up the *Record* of the above named date, you will find something interesting to your readers. I hasten to write you this information, hoping it may reach the pages of your next issue, and may stimulate others to take the step to awaken their representatives to the importance of this bill.

Hoping that you may reach the entire profession, and be successful in getting recognition from our government, I remain as ever, C. E. BURCHSTED, M. D. V.

P. S. I wish to say that the local papers have given us their heartiest support.

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THE DEFINITION OF "HOOSIER."

OMAHA, Feb. 11, 1900.

*Editors American Veterinary Review:*

DEAR SIRS:—An inquiry for the origin of the word "Hoosier" is made by J. P. Dunn, of Indianapolis, on page 821 of February REVIEW.

The definition given in the *Encyclopœdic Dictionary* is: "*Hoosier*—a corruption of 'husher,' from their primary capacity to still their opponents; or of 'who's yere?' a gruff inquiry when one knocks at a door (Bartlett). A term applied to the citizens of the State of Indiana."

I have lived in various parts of England, but never heard the term applied to animals affected with *hoose*. Provincialisms are, however, quite common, each county rich in their odd sayings and terms. I think the above meaning is very plausible, and evidently correct. Respectfully,

G. R. YOUNG, D. V. S.

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PROSECUTING ILLEGAL PRACTITIONERS IN NEW YORK STATE.

BUFFALO, N. Y., Feb. 22, 1900.

*Dr. Roscoe R. Bell, President N. Y. S. V. M. S., New York City:*

DEAR SIR:—I succeeded last Saturday in convicting Byron Smith, of Niagara County, this State, of practicing veterinary medicine in violation of Chapter 860 of the Laws of 1895. The case came up before Justice Richardson, at Lockport, and a big bluff was put up, denying all allegations of the complaint, the District Attorney acting as counsel for Mr. Smith; but before I left the city, we talked the matter over, and I convinced Mr. Smith that I had evidence sufficient against him, and he went in before the magistrate, withdrew his denials, and admitted that the allegations in the complaint were true and consented that judgment be entered against him for the penalties prescribed in that law.

There are others in this part of the State which we are looking after and shall very likely secure their convictions soon.

Sincerely yours, JEROME SQUIRES.

DIFFERENT MODES OF FIRING.

BRASHER FALLS, N. Y., Feb. 5, 1900.

*Editors American Veterinary Review:*

DEAR SIRS:—I would like to say a few words as to the different methods of firing, regarding the use of the feather edge and budding iron. In severe cases of ring-bone or spavin I much prefer the latter, and in spavins puncture the outside as well as inside of the tarsus. The "budding iron" I use has about twenty round points about $\frac{5}{16}$ inch long and $\frac{5}{8}$ inch apart, which are attached to a square plate. This I find leaves a very little blemish as compared to the "feather edge." After firing I use a blister of cantharides and hydrargyrum iodide rubrum. For weak tendons, wind galls and curbs I prefer the "feather edge." I am, Very truly yours,

A. W. BAKER, V. S.

## SOCIETY MEETINGS.

### MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The twenty-second regular meeting was held in the parlors of the Hotel Donovan, Saint Joseph, Mo., on the evening of December 11, 1899, at 7.30 P. M., with the following officers and members present: Drs. Forbes (President), Stewart, Moore, Washburn, Sloan, Netherton, Wright, Patterson and Ross Cooper, with Drs. Blackwell, Wilson, Steele, Goode, of Saint Joseph, and A. T. Peters, of Lincoln, Neb., as visitors.

A varied and very interesting surgical clinic was held on the afternoon of the same day from 2 to 5 P. M. in the hospital of Dr. E. J. Netherton, Saint Joseph, under the direction of Drs. Netherton and Patterson.

Routine business having been disposed of, the President (Dr. Forbes) called upon Dr. E. J. Netherton, who read the following paper, entitled:

"CITY INSPECTION OF FOOD PRODUCTS."

The production and distribution of milk and meat products engage the attention of no small part of our population. The use of milk is general and not limited to any class or locality. It is regarded as a necessity by almost every family, and for this reason information regarding it is important. By milk is meant the properly handled product of healthy, well fed cows.

It is a little heavier than water. Its specific gravity varies from 1029 to 1033. The first milk given after birth is called colustrum. It contains a large proportion of albuminoids and is not fit for food except for the new born, and any milk having a large amount of sediment is suspicious. Particles of dirt are a sign that germs are abundant. Thus dirty milk may be dangerous as well as disgusting. The dirt in milk consists mostly of particles of dead skin and manure which fall into the pail from the body of the cow during milking, but dirt and dust in the vessels used for handling milk and unclean attendants are also common sources of dirty sediment in milk. Milk from unhealthy or unthrifty cows or that which has been handled by sick persons is dangerous, as it contains infectious germs, or foreign substances which may affect the health of the consumer.

The germ of diphtheria, typhoid and scarlet fever and tuberculosis (consumption) have been found in milk and thus transmitted to man and spread from family to family. Feverish cows, those having just given birth to young, and sometimes cows that have been milked a long time, produce milk which should not be used. Any milk having unnatural appearance or odor should be discarded. The most common forms of fraud practiced with milk are the removal of part of the cream by the aid of a milk separator and the addition of water.

Most communities have laws against adulteration, but they are not as rigidly enforced as they should be. The law in this State requires at least three per cent. of butter fat, but the custom among dairymen is to have their milk come only within the bounds of the law and no more. If a dairyman is dishonest enough to water his milk he will not be careful about the purity of the water added. Contagious diseases have been traced directly to contaminated water added to milk for the purpose of adulteration, or which has been used to rinse the cans.

The most common substances contain salicylic acid, boric acid, borax or formaldehyde. These are not regarded as poisons, but when taken regularly in small doses in milk they have an injurious effect upon the system.

But here is not where the danger lies. The chief object of inspection is to determine whether the meat and milk products are from animals that are free from diseases, especially tuberculosis. It has been known for some years that the milk of cows

suffering from tuberculosis may contain tubercle bacilli. The bacilli consumed in the milk by infants and children may lead to tuberculosis (consumption) in one or more of its numerous forms. It has been the object of investigators, both in the medical and veterinary professions, to find out exactly under what condition the milk from tuberculous cows may be dangerous.

Both classes maintain that the tubercle bacilli may pass into the milk when a cow is affected with tuberculosis to a marked degree, or even when the udder remains free from disease. Tuberculosis deposits in the udder, when they have reached a certain size, can be detected in life. For this reason the inspector should condemn the milk of all cattle suffering from tuberculosis, because even if the udder is not visibly diseased tuberculosis may nevertheless be present. The great importance of a regular periodical inspection of dairy cattle is thus made manifest. If only such animals in which the udder is found diseased would be condemned and the milk rejected, a large amount of the injury done by tubercle bacilli in milk could thereby be avoided.

Those tuberculous animals in which the disease of the udder escapes attention because of its restricted character would still distribute tubercle bacilli. But inspection done by a competent veterinarian would largely relieve the apprehensions of the public, which have been aroused by the extended discussion which this dread plague of tuberculosis has undergone in all journals. But the public should be made aware of the great danger in the use of milk from cows which are beginning to emaciate or whose udders are diseased. If we bear in mind the wide distribution of infectious diseases in cattle, especially dairy herds, it would lead us to believe that dairy herds collected in different localities were always found to be more or less diseased or infected. It is essential, therefore, to guard the milk consuming public against disease, to look with suspicion upon all dairy cattle, and more especially those that have not been inspected.

The greater dependence of the cities on the food furnished in the shape of meat and milk has with unerring certainty multiplied the number of tubercular cases. If the mothers better appreciated the dangers to which their little ones are exposed, numerous diseases from the use of meat and milk from unknown sources, especially in the summer time, when it may be teeming with bacterial growth, more of them would exercise

their influence in securing the proper inspection of these products. It behooves the city officials and the veterinarians as sanitarians to exercise their most energetic influence in awakening the minds of the people to the dangers thus lurking in the meat and milk supply and from the dangerous power the milk supply of our city exercises in acting as the vehicle of transportation of such diseases as tuberculosis, diphtheria, typhoid and scarlet fever and many other diseases.

Under the present existing circumstances we have slaughtering establishments owned by butchers who buy their stock for slaughter where they choose and they are beyond the reach of the federal authorities. Why? Because government inspection only applies to abattoirs having an interstate trade. These parties say they are only supplying the local and State trade and are therefore at perfect liberty to buy and slaughter any kind of stock they choose, be it healthy, or crippled or diseased. Here State and municipal laws come into conflict, if any law exists. These places have been visited by the writer and the unspeakable filth and lack of all cleanliness points them out as sources of disease and a standing menace to the consumer of meats slaughtered there, without consideration of class of animals killed. It is true there are exceptions to the rule, but they are very few.

If any adequate reason ever existed for federal meat inspection the same reasons are of equal force as applying to State and municipal inspection. For this inspection to be complete a man who is a graduate veterinarian should have charge of inspection of animals killed or offered for slaughter, and the stamp or official seal of soundness should be affixed to his products so it will be free from all suspicion of disease and stand equally as good before the public as meats from abattoirs licensed by the United States authorities. It is said no law is stronger than the public opinion behind it. I feel confident public opinion in this city will be forceful enough to sustain all municipal legislation on this subject.

Next the veterinarian appointed to enforce the ordinance should be a member of the board of health, for it certainly is a matter concerning the health of many people. He thus has representative men to enforce his decisions. Again, it is not a question of politics, but of efficiency, and should be free from politics. He should receive a salary commensurate with his services and should devote his time to the work along with other duties that will properly come within his province. The

municipal control of meat and milk supply in cities is one of the necessities of the times if we wish to keep disease from doing its deadly work.

That milk is a vehicle by which disease is transmitted is a well established fact in the minds of all educated men. In how many ways an animal may be the source of infection it would require too long a time to describe. But tuberculosis and other diseases of the udder and teats suggest abundant causes of infection. The determination of these causes can only be described by the veterinarian. That diseased and tubercular cows are in our herds is true if the observations and experience of other cities are true. The municipality, the council, or board of health have the undoubted right to take the whole subject of meat and milk inspection under city control, and it is for them to enact ordinances protecting the public from diseased meat and impure milk.

The salary of an educated and competent veterinarian would approximately be $1200. Place the meat and dairy inspection under his control as a city official and license all butchers and dairymen, but hold them to a strict conformity to the ordinance or revoke their license, and publish the facts. To neglect wise and thorough control of the meat and milk supply of any city, is to invite the dissemination of diseases of the most virulent and fatal character. The municipal authority of this city should stand for the health of this community, for the health of the babies and invalids who depend upon this milk for food. Are the people willing to take the risks? I am of the opinion that the lack of such inspection and control is due not to willfulness, but to indifference and ignorance of the true conditions. Let the people agitate until their will is obeyed.

In the absence of Dr. Thackaberry, the discussion which followed the reading of the paper was led by Dr. S. Stewart, of Kansas City, as follows:

*Dr. Stewart:* I had not expected to enter very much into the discussion of this subject and have not noted it as closely as I should have done. I wish to say, however, that I was quite interested in the paper and think such papers should be placed before the public as frequently as possible, so that it may be fully and correctly informed, and be guided accordingly. Most of our veterinary papers that are prepared for veterinary societies are not very well adapted for presentation in the public press. They are much inclined to be too technical, too

scientific. This paper in my judgment would serve a most excellent purpose if published in the daily press of this city, and I do not doubt but what it would receive considerable publicity by quotation. The statements contained therein are unquestionably in line with many such scientific papers that have been presented heretofore, and I would not feel like controverting the points that have been made. I trust that the society will see to it that the paper receives that publicatior which will put it into the hands of those who need to be informed upon such topics.

There is a theory extant that the veterinarian should not so frame his thoughts that they serve as alarmist articles, that he should be cautious, that it is unfair and unjust to the public to spread abroad alarmist articles, that they disquiet the comfort of the home, that mothers and fathers become anxious and do not appreciate the substance upon which they must live. But some alarming statements must be placed before them or they will not awake to their danger. I know of no way of awakening their latent understanding without it is done somewhat rudely; so many things press for attention that it is only those things that arouse curiosity, or that appeal to their fear for their personal safety, personal vanity, or some other powerful sentiment, which are likely to awaken any interest whatever, and such articles as these will serve a good purpose, even though there may be some here and there who may be seriously disquieted by the discovery that such things are possible. The public press teems with articles upon impurities in other things besides meat and milk and the public is becoming awakened to the necessity for inspection of all kinds of food.

I note that the paper fixes the salary at $1600. Now, that is a fair salary and certainly would attract capable men to take up the work. It is not usually the case, however, that municipal bodies fix so large a salary as that to begin with, but even though the salary provided by any ordinance that might be passed should seemingly be meagre I believe it would justify a local veterinarian who has other means of livelihood in accepting such an office, and if by his ability he can demonstrate his usefulness there is little doubt but that within a reasonably short time the municipality would raise the salary to an adequate sum. Some men say, if they cannot get a substantial salary they will not accept sanitary jobbery of that kind, thinking it is bemeaning to their special qualifications, but experience should teach such that it is not customary in any city for a

newly created office along sanitary lines to be very well paid, especially in countries where it is just being inaugurated. They should be content with a meagre salary, and should also be content, if appointed, with accomplishing apparently small results, gradually extending their influence and the value of their office. The public is likely to be revolted with sudden onsets of officialism in any direction, and soon rebel and dispose of it entirely. There are therefore two sides to the question, and the conservative one, it seems to me, should prevail. I hope the paper will receive the publication to which I have alluded.

*Dr. Wilson:* I would like to ask the author of this paper which he thinks is the more likely to produce the typhoid fever, diphtheria, etc., to which he referred, tuberculosis, or the uncleanliness of which he spoke.

*Dr. Netherton:* Well, I think scarlet fever and diphtheria are more frequently contracted as a result of the impurities in the water and its adulteration than from the tubercular trouble.

*Dr. Peters:* I was interested in Dr. Netherton's paper, and I hold the same views that Dr. Stewart does. At the Omaha, Neb., meeting Dr. Ramacciotti gave a very excellent talk on this subject. He gave the history of milk inspection in that state, and throughout his talk you could see how he nursed the municipality to the inspection. He did not achieve his object by the method of the alarmist, but with sound, convincing argument he accomplished a great many things. He admitted that the system was by no means perfect, but stated that he was in hopes of having passed a new ordinance which he had framed and which he believed would improve the service. Now I am a firm believer in that way of doing things. The veterinarians of Lincoln have long felt that they should do something. They looked to the experiment station to take the initiatory step. The men engaged in the business there had frequent consultations with the experiment station authorities, and we also had consultations with the city authorities, and we found that the time was not ripe, but this small corps of veterinarians there kept up their little fight on the quiet, and lately we have received invitations to talk to the City Improvement Society, which is composed of ladies, and before that body I had the pleasure of talking in a popular way regarding the cleanliness of the city, proper sanitary precautions, and incidentally touched upon the question of the inspection of milk. I told them of the number of cases the veterinarians had found and how powerless they were, and it seems that this organiza-

tion is going to do far more than we ever dreamed of. We were always accused by the politicians of looking for a job, especially during the hard times, that horses were cheap and we had to look for other fields of labor. I just throw out this suggestion that if you have such a society here, try and secure an invitation to give them a popular talk, and you will not be sorry.

Apropos of Mr. Netherton's reply to Bro. Wilson, I wish to say that I do not believe the typhoid, diphtheria or tubercular germs are conveyed to the milk so much by adulteration as by the use of improperly cleaned vessels and the existence of unsanitary conditions around the dairy.

*Dr. Netherton:* I desire to say further that I have been treating cattle in several of these dairies, and in one case which I recall I was called to see a cow which had calved, I think, the week before. She still had a retention of the placenta, and they were saving the milk of that cow. There was such an odor from the animal that it was difficult to stay in the stall where she was. They had a well within 10 feet of the stable. They have 200 cows in the stable and it was at this well that they washed their milk vessels. I saw them do that, and in all probability the water which was used to adulterate the milk was obtained from that same cistern. Last year was a very hard year on the dairymen in this city as well as others. The cows were not calving and the milk supply was short, and the fact of adulteration was not denied, but if they used that water to adulterate their milk certainly everything was favorable to the propagation of the germs of disease and their dissemination among the consumers of the milk.

*Dr. Moore:* I do not know that I can add anything to what has been said in regard to this paper. I certainly appreciate it very much, and agree with the doctor fully in his statements. I think that ofttimes milk becomes contaminated even though fairly good sanitary conditions prevail in the dairy and care is bestowed upon the cans. The cooling boxes are often sufficiently contaminated, and scarlet and typhoid fever may exist in the family, and the milk may become contaminated in that way. I do not think we could very well say anything to unnecessarily alarm the public. Of course it might cause some people to say we are alarmists, but to me the matter is so important and covers so much territory, is so essential to the welfare of the people, that it would be hard to say anything that would alarm the people beyond what they should be alarmed.

But whether it would not be policy to go a little slow might be a question.

So far as the necessity for publishing or getting before the people this class of scientific literature is concerned, I think that cannot be too greatly emphasized. I have felt for a long time that our efforts as veterinarians were confined too much to preparing papers for the veterinarian, for the scientific, educated men, and not enough for the masses of the common people, and it seems to me that it would be a good thing if at every meeting we had at least one paper devoted to matters of vital interest to the masses of the people prepared in such a way that it would be acceptable to the press, especially the local press in the sections of country where the meetings are held. If we could reach the people through that source it would benefit both the people generally and the veterinary profession.

*Dr. Sloan:* I had hoped that the writer of this paper would give us a practical solution of this question of milk inspection. I have seen a little of that tried in different places, and it is just as well that we note the mistakes of others in order not to fall into the same ruts ourselves. For instance, in San Francisco they have a milk inspector appointed; he goes about the city collecting samples of milk from the dairymen, and from his report the city undertook to enforce the testing of the milk from the different dairies. As a consequence the city has a number of lawsuits on its hands, the dairymen having combined to oppose the testing ordinance, and at the last accounts I heard the matter was still in the courts. In Chicago the veterinary society proposed that the city take up the matter and enforce the testing of all the dairy cows in the city every three months. The mistake they made there was in giving the public the idea that it was necessary to test the cows every three months. If they had fixed the time at six months or a year they might possibly have accomplished their object. The frequency of the inspection fostered the opposition of the people to the scheme, however, and it was not popular for that reason. However, the matter was well stirred up, and in that way some good no doubt was accomplished, as it is necessary, it seems to me, to agitate these matters in order to educate the people to a sense of what is due them.

I think it would be a good thing to bring the matter before the physicians of the city, and an expression from them would probably have more weight than a recommendation from associations of this kind. If an effort is made to secure municipal

inspection in the city of St. Joseph, I would suggest that the city board of health be approached in the matter and try and secure their co-operation.

*Dr. Netherton:* During this last spring I circulated a petition among the physicians and each of them signed it. It was addressed to the mayor and the city board of health, asking that an inspector be appointed, a veterinary graduate. I think I had something like 75 signatures of physicians and that of quite as many laymen. It was referred to the board of health and was pigeon-holed. They did not seem to take any interest in it. They had a food inspector in this city up to last year, a layman who never did anything, and the office was abolished. This fact was alleged as a reason for their failure to act upon the petition which I presented. However, I think that in the coming spring, if we have the co-operation of the physicians and the board of health, we will have inspection established again, and it would be much easier if we could get this on a fee system. I do not know of a precedent for such a system, but lack of funds for such a purpose was urged by even those who were favorable to the proposition. But, as I have already said, I think if the matter is agitated until the end of this fiscal year we can get some money appropriated and have the office re-established next spring.

*Dr. Cooper:* The only case I recall now regarding public sentiment relative to milk inspection occurred in Iowa the past summer. Almost every town in that particular section has from one to three creameries, and some one had made complaint about a man having tuberculous cows who was selling milk to one of the creameries. It was found upon investigation that the man had two or three cows affected with tuberculosis. He told the inspector that another man a short distance from there who was milking from 50 to 100 cows had a bad herd. This herd was examined and 30 cows were condemned. The water was furnished by a spring surrounded by hills, and around this was his pasture, and in rainy weather the water from the hills was mingled with the water of the spring. In the winter his stables were crowded very full, and are not very cleanly. Not long after the quarantine had been established a local clergyman wrote a letter to the state inspector asking him to lift the quarantine of the rich man's cows, but saying nothing of the other man! The owner of the cows was quite wealthy and the clergyman's influence would outweigh that of any half dozen physicians or veterinarians you could get together. Where

you have such interference as that it of course takes some little time to control public sentiment, or enlighten them as to the actual facts in the case.

*Dr. Forbes:* Before closing the discussion I would like to emphasize some of the remarks made by several of the participants in this discussion as to the necessity of getting before the public the need for a thorough and competent meat and milk inspection. I think also that the suggestion of some members as to going a little slow should be considered. We should be content with a very small thing at first and wait until the public has been educated to it before pushing the matter to any great extent. I think by so doing we will arrive at better results.

*Dr. Wilson:* On ante-mortem we frequently have cows where the udder is enlarged, and also have matter and little abscesses in the udder, and I would like to ask the writer of this paper how he would diagnose whether this diseased condition arose from tuberculosis or was simply an inflammatory product.

*Dr. Netherton:* I think that where you have an inflammation due to mammitis the nodules are not as small as in tuberculosis, but I believe it would have to go to post-mortem before it could be determined positively. I have a cow out here now in one of these dairies, a nice Holstein cow, and giving about six gallons of milk daily. On the right hind quarter a little abscess developed. It commenced a mammitis, I think, and I prescribed the regular treatment for mammitis, to which it seemed to yield partially. The enlargement abated to about the size of a hen's egg. Two weeks later I was called again and found it had become very hard. I put a knife in it and got quite a bit of pus. It seemed to heal up, and left a little nodule there about the size of a walnut. It ran along that way for four or five months and did not seem to bother her, when about two weeks ago it commenced enlarging and it got the size of a goose egg. I was again called and again applied the knife, and as before obtained a considerable quantity of pus. It is going down nicely and I think will soon be all right, but all this time he has been using the milk from this cow, supplying it to the city. I do not know whether it was a case of mammitis or tuberculosis.

*Dr. Peters:* I would call it a suspicious case of tuberculosis. All such cases should be tested with tuberculin.

*Dr. Stewart:* As the question has drifted into one of ante-

mortem and post-mortem determination, I might state that it it altogether probable that there are many cases of mammitis which result in what is popularly known as spoiled bag, which are not tubercular. The udder, one or several quarters of it, may be involved, but is usually involved as a whole, and upon palpation presents quite a uniform surface, which is quite dense, and in these cases there is no characteristic enlargement of the lymphatic glands above and behind the udder, while in cases of tubercular mammitis tubercular masses are developed in the substance of the udder, usually so pronounced that they can be readily determined by palpation; also there is involvement of the supermammary lymphatic glands. I do not know that it is common to find a tubercular udder in which the tubercular process has resulted in the formation of abscesses such as have been described. However, there are so many things with which I am not familiar which are facts, that I would not undertake to say the case described is not tubercular. Certain it is that it would be good policy to test a case of that kind with tuberculin, and in that manner pass upon the question.

*Dr. Wilson:* Down here we get many cases of that kind, almost every day, in fact, and we pass them along unless they show other symptoms along with the enlargement, where the udder has had little abscesses form from split bag, and upon post-mortem examination they show no sign or trace of tuberculosis in most cases.

*Dr. Cooper:* I had a case last summer at the packing house of Schwarzchild & Sulsberger, at Kansas City, the first I noticed. The udder showed quite a large abscess and tubercular indications all around it. I told the boys to be careful and save the guts and everything of that kind. When the animal was hung up it showed no great emaciation; lungs were found to be very bad, and intestines, liver and ovaries badly involved. In fact, the whole system was about as bad as I ever saw. She was not fat nor yet what you would call thin, and probably would be passed as a cow with split bag. This large abscess would probably hold half a teacupful in one side of the udder, the other not quite so much, of quite soft pus which flowed readily, and which did not have the usual appearance of pus, which you will see in tuberculosis—different color somewhat, and a great deal thinner.

Dr. Stewart's name appeared next on the programme with a paper upon the subject "Examining Pork for Trichinæ,"

which embraced the examination under the microscope by the members present of specimens of trichinæ which Dr. Stewart had furnished; it was deemed advisable to defer this until after the reading and discussion of Dr. Peters' paper upon "Meat Inspection." (*To be continued.*)

## MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting was held on the evening of Dec. 27th, at No. 19 Boylston Place, Boston. President Langdon Frothingham called the meeting to order at 8.15. Minutes of previous meeting read and adopted.

Dr. John M. Parker moved that the Secretary be instructed to send a constitution and application blank to every graduated practicing veterinarian in the State. Dr. Daniel Emerson seconded the motion. Carried.

The essayist for the evening, Dr. Frothingham, read the following paper on "Actinomycosis."

He reviewed the subject of actinomycosis and compared this disease with botryomycosis, a disease of the horse manifested by an infectious tumor (botryomycoma), which both macroscopically and microscopically closely resembles the actinomycoma. Dr. F. spoke of the various animals in which actinomycosis has been observed, and the portions of the body where these tumors have been found. He spoke particularly of actinomycosis of the udder in cattle. Although the disease in this organ is rather uncommon, it has been thoroughly described by several European investigators. Jensen, of Copenhagen, for instance, has written of 20 cases and called attention to its occurrence in two distinct forms; in one form, the more common, the lesions are usually not numerous, but are apt to be extensive, a single tumor becoming as large as a hen's egg or even larger, and containing much pus. One or more quarters of the udder may be involved.

In the other form the udder may become double its normal size in the course of a few months and is very hard and rough. Sometimes only one quarter, and sometimes all four are attacked. The cut surface may seem almost normal, but upon close inspection, the lobules are seen to be larger than usual and to contain nodules with purulent centres. These nodules may be exceedingly small, hardly visible to the unaided eye, or they may be as large as a pea. They may be found in countless numbers scattered throughout the gland and are also found on the mucous membrane of the milk ducts and cisterna. Such

cases of actinomycosis of the udder so closely resemble miliary tuberculosis of that organ that a diagnosis can only be made by the microscope. Actinomycosis of the udder in swine is mentioned as a common occurrence in Europe by John Cohn and others; Dr. F. has never seen a case in this country. Dr. F. then demonstrated the udder of a cow which showed extensive lesions, illustrating the second form of actinomycosis as described by Jensen; he called attention to the peculiar pus from the nodules, which showed the typical yellowish granules (ray fungus or actinomyces), always present in cases of actinomycosis and by which a diagnosis is readily made; a quantity of these granules in a small tube of alcohol were also shown.

The appearance of these granules fresh from the pus and crushed under a cover glass demonstrated with a microscope, were also shown. Sections of the udder, stained with hæmatoxylin and eosin, were shown with both high and low power of the microscope, further illustrating the appearance of the actinomyces and the histological structure of the nodules.

The cause of the disease was then spoken of. Pictures were shown to illustrate its polymorphous form. To what group of micro-organisms the actinomyces properly belong is still an open question, the speaker said, so that the term actinomyces seems still the best to use. The best opinion agrees that it is exceedingly difficult to cultivate this organism artificially, and that experimental inoculation from animal to animal is practically impossible. The disease, therefore, can only be infectious to a very mild degree, if at all, an assumption amply upheld by experience, since markedly diseased animals may remain for years in a herd without infecting other animals.

On the contrary, the disease is often observed in mild enzootic form where herds are fed on certain grasses and grains. Especially, it seems, where these are grown upon reclaimed lands. The life history of the micro-organism is unknown. It may be that its life in the animal body represents only one phase and that the most virulent form occurs in its life upon some grasses and grains.

Dr. F. then spoke of botryomycosis. In 1869 Bollinger gave this name to a disease of the lungs in horses, which is characterized by fibrous tumors varying in size from a small pea to a pigeon's egg, and having larger or smaller purulent centres. He describes a specific fungus as the cause and called it *zooglosa pulmonis equi.*

In 1884 Risolta again described this fungus and classed it

with the actinomyces bovis. Later, in 1885–86, Cohn and Robe further studied this organism, succeeded in cultivating it in the laboratory and reproduced the disease by experimental inoculation. The organism is a micrococcus which in the animal body collects in clumps, and these clumps become surrounded by zooglosa mass.

Cohn called the organism *micrococcus ascofurnams.* Besides the tumors in the lungs this micrococcus has been shown to be the cause of numerous other tumors in the horse. The most common is the champignon or chronic scirrhous cord ; also small tumors in cutis and sub-cutis at any part of the body where there is pressure from the harness (region of collar, croup, corners of mouth, etc.); tumors on stump of tail after docking, tumors in the udder, and finally theory of "fistulous withers." The macroscopic lesions are exactly similar to those of actinomycosis, even to the yellowish granules. Differential diagnosis is only possible with the microscope, when it is seen that these granules are composed of numerous round masses of zooglosa and not actinomyces. Such diagnosis is essential since in several instances scirrhous cord in the horse has been caused by the actinomyces.

Up to the present time botryomycosis has only been observed in the horse. Sections of a tumor of the cord and one of the udder of a mare were shown.

Dr. Winchester moved a vote of thanks to the essayist.

Dr. E. T. Harrington reported a case of colloid cancer of the stomach.

Dr. J. F. Winchester reported a case of aneurism and embolism of the posterior aorta, and both iliacs of the right side and the internal of the left. History—A chestnut gelding, aged, was subject to attacks of colic during the past three years; lameness, first manifested during the summer of 1889, which with rest passed away; during the fall the lameness became very severe, especially if the horse was driven faster than a walk; this would pass away in a few days. Just previous to being killed he could not trot a half-mile without becoming very lame and in great pain. Post-mortem showed a dilation of the posterior aorta with an organized clot from the posterior end, anteriorly to where the iliacs are given off. The iliacs of the right side were dilated and contained an organized clot for about twelve inches; the internal iliac of the left side contained a clot several inches in length.

Members present—Drs. Emerson, Frothingham, Harring-

ton, Howard, Lee, Lewis, Parker, Pierce, Stickney, Winchester, Winslow.

HENRY S. LEWIS, *Secretary.*

## MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The fifth semi-annual meeting of the Minnesota State Veterinary Medical Association was held at the Merchants' Hotel, St. Paul, Jan. 11th and 12th, 1900. President Dr. M. H. Reynolds, of St. Anthony Park, called the meeting to order.

The following members responded to roll-call :—Drs. C. C. Lyford, S. D. Brimhall, J. G. Annand, J. S. Butler, A. A. Keyes and M. J. Sexton, of Minneapolis ; B. A. Pomeroy, R. Price and G. A. Dallamore, of St. Paul ; M. H. Reynolds, of St. Anthony Park ; J. P. Anderson, Rochester ; L. Hay, Faribault ; K. J. McKenzie, Northfield ; B. Lambrechts, Montevidio ; S. H. Ward, St. Cloud ; W. Amos, Owatonna ; J. N. Gould, Worthington ; Geo. McGillivary, Pipestone ; J. W. Gould, Fairmont ; F. J. McLaughlin, Blue Earth City ; H. C. Lyons, Hutchinson ; H. C. Peters, Litchfield ; F. H. Farmer, Wapheton, N. D.

President Reynolds gave an address, speaking lengthily on how to make a State veterinary medical association a success, bringing out some very useful points with regard to place and way of holding association meetings, emphasizing the fact that association work should be based upon the work of its individual members.

Dr. Ward gave a report on veterinary college education, bringing out some very important facts in regard to graduates of two year colleges.

Dr. Reynolds, as chairman of the committee on recent veterinary literature, read a very interesting report on the great advances made in veterinary surgery.

Dr. Brimhall reported some results obtained from the use of potassium iodide in the treatment of parturient paresis and in azoturia.

Dr. Brimhall also spoke quite lengthily on dealing with infectious diseases of animals.

Dr. C. C. Lyford then made his report as chairman of the Committee on Legislation and Empirics, stating that the case against Dr. McCullock, of Minneapolis, for illegal practice, had been set for trial January 19th, he having pleaded not guilty.

Farmer Miles, of Charleston, Ill., who was present at the

meeting, was called upon and made some very interesting remarks on ridgling castration.

The meeting then adjourned to the State Farm for supper, after which clinics were held as follows:

Removal of scirrhous cord—Farmer Miles.

Operation for fistulous withers—Dr. J. N. Gould.

Removal of lateral cartilage for quittor—Dr. C. C. Lyford.

The meeting then adjourned till 9 A. M., Friday 12th, when the following applicants were taken in as members of the association: Drs. E. T. Eckles, St. Charles; W. A. Sprouler, Waseca; M. S. Whitcomb, Austin; E. T. Frank, Warren; T. Falconer, Glenwood.

On motion, Drs. Reynolds and Brimhall were appointed to draw up an agreement with the Board of Trustees of the State Agricultural College to make arrangements for a Minnesota State Veterinary Medical Museum, to be contributed to by the different members of the association.

The Secretary then read a circular letter from Dr. Salmon, asking for the support of the individual members in fighting for the bill for the improvement of U. S. Army veterinary corps.

On motion, the President appointed a committee of three to draw up resolutions representing the sentiments of the association with regard to the Army bill. Drs. S. H. Ward, E. T. Frank and J. G. Annand were appointed.

A voluntary contribution was taken up and Secretary was instructed to send same to Dr. Salmon for the A. V. M. A. Committee on Army Legislation.

The election of officers then took place, with the following results:—

President—Dr. S. H. Ward.

First Vice President—Dr. W. Amos.

Second Vice President—Dr. C. C. Lyford.

Secretary and Treasurer—Dr. K. J. McKenzie.

Trustees—Drs. B. Lambrecht, H. C. Lyons, and J. S. Butler.

The meeting then adjourned for dinner. At 2 P. M. the meeting was called to order by President S. H. Ward.

Dr. C. C. Lyford reported a case of unusual and interesting lesions of glanders, and exhibited a portion of a trachea showing marked glanderous lesions. A very interesting discussion followed on the use of mallein in the diagnosis of glanders.

Dr. Head, M. D., then read a very interesting paper on the

"Leucocyte Count in Septic Infection," followed by an interesting discussion.

On motion, a vote of thanks was tendered Dr. Head for the manner in which he handled his subject.

The following committees were then appointed:—Colleges, Dr. S. H. Ward; Infectious Diseases, Dr. S. D. Brimhall; Finances, Dr. M. J. Saxton; Legislation, Drs. J. S. Butler, R. Price, and C. C. Lyford.

The Committee on Recent Veterinary Literature was subdivided as follows:—Surgery, Dr. M. H. Reynolds; Bacteriology, Dr. S. D. Brimhall; Medicine, Dr. J. N. Gould.

The meeting then adjourned. K. J. McKENZIE,
*Sec'y and Treas.*

## VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at 8.30 P. M., Feb. 7, in the Lecture Room of the N. Y. A. V. C., by President Robertson. After roll-call the reading of the minutes of the preceding meeting was heard.

*Report of Board of Censors.*—Dr. Clayton, Chairman, reported the name of Dr. August H. Drucker, graduate of the A. V. C., class of 1894, which had been acted upon by that committee, for admission to membership, and favorably recommended him for election. Moved and seconded that the report be accepted and that Dr. Drucker be duly elected a member of the association. Carried. Dr. Drucker was declared a member, and was introduced as such to the members present by Dr. Clayton.

*Reading of Papers.*—Dr. Lellman next read a very carefully prepared paper entitled, "Heart Stimulants in Acute Infectious Diseases of the Horse." A general discussion followed. Moved by Dr. O'Shea that a vote of thanks be tendered the essayist. Seconded and carried.

*Committee on Legislation* reported progress through Chairman O'Shea.

*Committee on Ways and Means.*—D. Bell, Chairman, reported two papers for the March meeting. Dr. Ryder's paper held over from February meeting on "Docking," and "What Constitutes a Spavin in Examination for Soundness," by Dr. Hanson.

*Reports of Cases.*—Dr. Schwarzkopf, by request of the President, related a few cases of parturient apoplexy treated with

Schmidt's treatment. Discussion. Dr. Bell then opened the subject of azoturia and treatment by iodide of potassium. Discussion.

*New Business.*—Moved and seconded that the janitor receive two dollars a month. Carried.

*Committees Appointed.*—The Secretary was requested to announce the following committee appointments by the President. Board of Censors: Dr. Clayton, Chairman; Drs. Roscoe R. Bell, R. S. MacKeller, E. B. Ackerman, and J. E. Ryder. Legislative Committee: Dr. Arthur O'Shea, Chairman; Drs. F. C. Grenside and Wilfred Lellman. Prosecution Committee: Dr. W. C. Bretherton, Chairman; Drs. T. Delaney and Geo. J. Goubeaud. Ways and Means Committee: Dr. Roscoe R. Bell, Chairman, and Dr. Theodore A. Keller. These are the several committees for the year 1900, which President Robertson could not find time to appoint earlier, and requested the old committees to act until new ones could be appointed.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary.*

## CHICAGO VETERINARY SOCIETY.

The monthly meeting of the society was called to order on Monday evening, January 1st, in hall 912, Masonic Temple. President Hughes presided and twenty-five members and several visitors were present. All were pleased with the new meeting place and many expressed regret that we could not secure a lease for one meeting a month.

The application for membership of Dr. W. F. Fish having been favorably indorsed was presented and his election followed. Dr. W. E. Howe presented a paper on "Post-Mortem Inspection of Swine,"* which was greeted with enthusiasm, prolonged applause, a lively and extended discussion. The privileges accorded to physicians by the telephone company was recited by Dr. E. L. Quitman, and it was resolved upon his motion that a committee be appointed to confer with the officials of the company and ask that veterinarians be granted free use of drug store telephones in calling up their offices. President Hughes appointed the following to look after the matter: Doctors E. L. Quitman, R. G. Walker and A. C. Worms.

A few other matters of interest to members were discussed and it was resolved to adjourn.

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The regular monthly meeting of the society was convened

* Will be published in an early issue.

on Monday evening, Feb. 12, 1900. President Hughes presided. Seventeen members and Dr. Mitchell, of the B. A. I., were present.

President Hughes announced the inability and cause of Dr. Jas. G. Fish's absence, who intended to read a paper on "Post-Mortem Inspection of Cattle," and in its stead Dr. E. L. Quitman had kindly agreed to present an essay on "Paralysis and Treatment," which when read was received with much favor and ended with an extended discussion of much interest to all.

Dr. O. R. Dubia reported a case of stringhalt due to an injury received by having the foot caught in the car track. This was followed by a case somewhat similar and reported by Dr. Quitman in which stringhalt followed an injury to the vertebræ; both cases were thoroughly discussed and the meeting adjourned.

JOS. B. CLANCY, *Secretary.*

## GRADUATES SOCIETY M'GILL UNIVERSITY.

The second annual reunion and banquet of the graduates of the Faculty of Comparative Medicine and Veterinary Science of McGill University was held in Boston, at the Quincy, Feb. 17, 1900. About twenty-four sat down to the dinner, among whom were Prof. M. C. Baker, representing the Faculty of Comparative Medicine of the University; Prof. Colby, representing Principal Peterson, of the University; Dr. J. F. Winchester, representing New England Alumni Association, A. V. C., and Dr. Williams, M. D., representing the Graduates Society of McGill, and Drs. W. L. Williams, Ithaca, N. Y.; J. M. Parker, Haverhill, Mass.; B. D. Pierce, Springfield, Mass.; G. H. Lee, Boston; A. S. Cleaves, West Gardner, Mass.; J. H. Roberts, C. A. Boutelle, H. H. Neucomb, D. Cullen, J. C. Parker, J. F. Fahey, L. A. Paquin, D. B. Comstock and W. Lincoln Bell.

After a meeting in the reception room for the purpose of introducing the graduates of the different years an adjournment was taken to the banquet hall, where after a repast in which the chef surpassed himself, the toasts and address of Prof. W. L. Williamson "Veterinary Progress" was listened to with much interest. In the business meeting following it was decided to form a permanent society under the name of the "Graduates Society, Faculty of Comparative Medicine and Veterinary Science, McGill University," with an annual subscription of two dollars, of which the surplus, after deducting current expenses, is to be held in trust until there is sufficient to endow a

post-graduate course. A notice of this to be sent to every graduate.

The election of officers resulted in the selection of Dr. J. M. Parker, Haverhill, Mass., President; Dr. A. W. Cleaves, West Gardner, Mass., Secretary–Treasurer, and a board of six trustees.

The date and place of the next reunion is to be decided upon by the officers.

## NEWS AND ITEMS.

DR. G. W. WATERS, of Brooklyn, has retired from practice and removed to his farm in Delaware.

PAINLESS BLISTER.—The following is recommended in the *Medical Record:* ℞ Mentholis, chloralis, āā gr.xx; ol. theobrom., ʒss; spermaceti, ʒi. M. et fiat past. Sig. apply.

MALPRACTICE is defined by a writer in the Philadelphia *Medical Journal* as "conduct on the part of the physician which does not conform to certain standards and which results in the injury of the patient."

DR. H. D. GILL recommends the hypodermic injection hourly of two drams of a solution of camphor and ether (1:10) as a heart stimulant in critical conditions around the crisis of lung inflammations.

WHILE automobiles were being stalled by a snowstorm of only moderate proportion in New York the middle of February $125,000 worth of trotting horses were sold at Madison Square Garden. A yearling brought over $2000.

VETERINARIAN W. T. MONSARRAT, of Honolulu, H. I., was a competitor for the amateur photographic prize of *Leslie's Weekly* recently. His last effort was a well executed reproduction of the burning of the plague-infested buildings in Honolulu.

THE NEW YORK SPEEDWAY has stimulated so much interest and rivalry in the light harness horse that the horsemen of every city where such horses are at all popular are either constructing one or are discussing means for obtaining one. The practicing veterinarian can look upon such efforts with complacency.

FAMOUS OLD MAUD S. was shown but not offered at the dispersal sale of the late Robert Bonner's horses in New York last month. Foaled in 1874, her companions had to keep a respectful distance from her heels, her old disposition to kick

being as active as when she captured the world's record.

THE annual report of the United States Quartermaster General for the year ending June 30, 1899, shows that for the use of the U. S. army 7283 horses were purchased at a total cost of $790,998.21. At the date mentioned there remained in the possession of the army authorities 12,622 horses and 13,158 mules, valued at over $2,500,000.

A DISTINGUISHED PHYSICIAN, in the *Medical Record*, comparing the treatment of pneumonia at the beginning and close of the nineteenth century, says that in the first epoch the main reliance was bleeding and counter-irritation, which are both now out of vogue. He regards the abandonment of phlebotomy as a distinct loss, as, though it was much abused, it left fewer diseased organs as a sequel.

THE VETERINARIAN IN THE ARMY.—The following letter, signed "Cavalryman," is from the *Army and Navy Journal* of Jan. 27: "The veterinary surgeons of our cavalry regiments have an anomalous position. The veterinarian is as important for the care of our horses as a surgeon is for the care of our men. In other words, he is a necessary adjunct to our cavalry service. He should be given an official status similar to that of our surgeon, and should have the privilege of retiring after an honorable and faithful service. As it is now, a veterinary surgeon is appointed by the Secretary of War, and assigned to a regiment and becomes a part of that regiment; yet he is regarded as a civilian. He sees men grow old in the service and retire as a reward for their long and faithful service; but he remains, no matter how old he grows or how long and faithful is his service. Now, that legislation is being considered with a view of improving the Army, the anomalous status of the veterinary surgeon should be corrected. They should be given the rank, pay, and allowances of an officer of cavalry."

AN ELECTRIC DANGER FOR HORSES.—Herr Rusterholz, writing to the *Schweizer Archiv* and reported in *The Veterinary Journal*, relates a somewhat startling story which may put veterinary surgeons on their guard in these days when electricity is used everywhere. He says that two carriage horses got into the habit of refusing to take their oats. They both appeared to be in perfect health, ate hay with appetite, and took their oats easily; but at a given moment after they had consumed a part of their ration, they tried to take up the oats at the bottom of their iron manger and suddenly recoiled, making curious movements with their heads. The animals did

their work well and seemed to be in good spirits, but the same strange conduct was repeated at each meal. When Rusterholz was called in he began by examining all the food, especially their oats. All was found to be of excellent quality. Wishing to see if the oats lying in the manger had not undergone some deterioration which might explain the symptoms, he thrust his hand into the oats, which were now somewhat moist by admixture with saliva and water. Each time he did this he felt a curious tingling, such as is produced by an electric current. The stable being lighted by electricity, Rusterholz caused the wires to be examined, and this brought about the discovery that over the horses' heads the wire had become denuded of its insulating cover; the current was transmitted by the coat of paint, which had become an excellent conductor by reason of a slight coating of moisture deposited on its surface through the condensation of vapor, and this current reached the iron manger. It did not cause the animals any trouble so long as the oats were dry; but as soon as they became damp by the saliva and condensed vapor from the horses' breath it took effect, and the animals were subjected to it every time they took a mouthful of oats.

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